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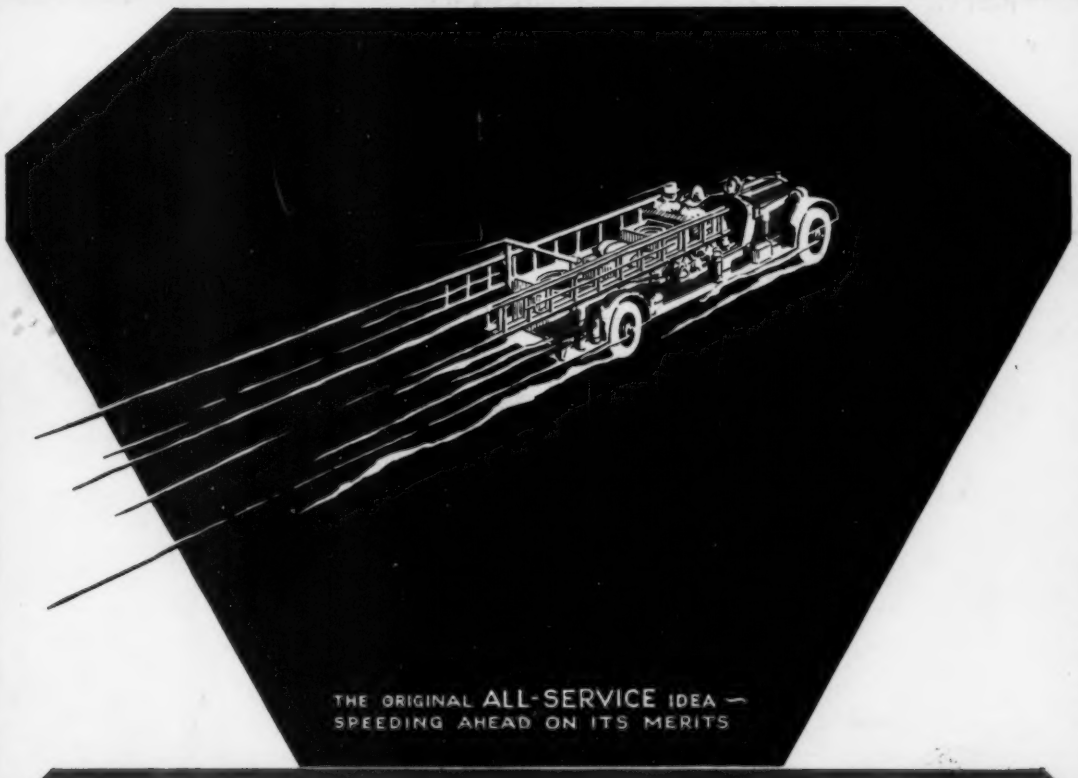
A Consolidation of
FIRE AND WATER ENGINEERING *and* THE FIRE ENGINEER

NOVEMBER 30, 1927



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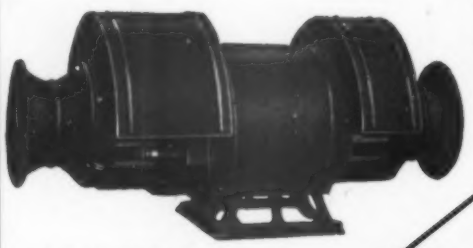

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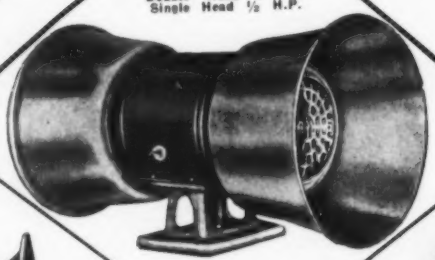
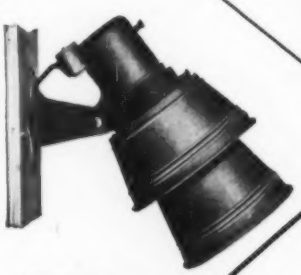


MOTORCYCLE TYPE B

TYPE H. APPARATUS SIREN HAND OPERATED



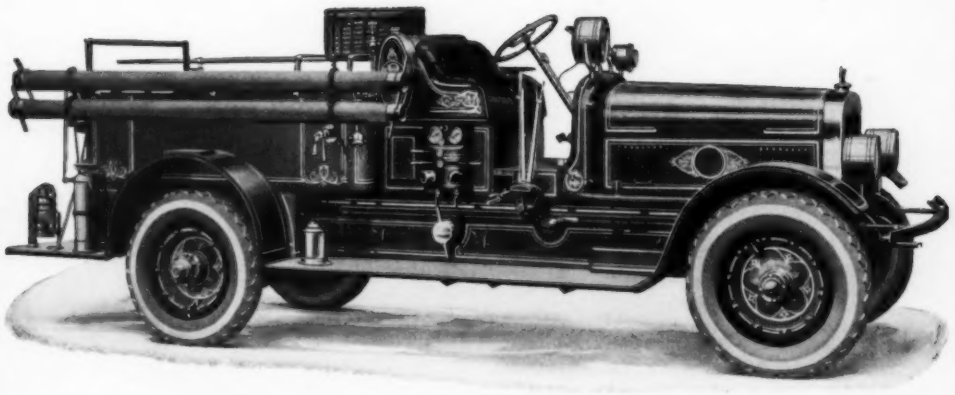
ADVANCE TRAFFIC WARNING
Sterling Type F ½ H.P.

NO. 12. APPARATUS SIREN WITH FLAT BRACKET AND LONG PROJECTOR

NO. 12. APPARATUS SIREN WITH DASH BRACKET AND SHORT PROJECTOR

Sterling Siren Fire Alarm Co., Inc.
61 Allen Street
Rochester, N. Y.

STERLING



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Almost every piece of fire apparatus is neatly finished with polished metal and brilliant color to give it flashing beauty. But beauty alone will not conquer fire.

So Seagrave gives you more—sturdy pumpers and other apparatus built by men schooled by experience—apparatus that has been tested, time after time, and that has proved its trustworthiness. Seagrave apparatus stands supreme for reliability.

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The Journal of the Fire Protection Profession Since 1877

MEMBER
Audit Bureau of Circulations
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FIRE ENGINEERING

A consolidation of FIRE AND WATER ENGINEERING *and* THE FIRE ENGINEER

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The Morning Mail

BESIDES the letters of congratulation that are being received at this time when we are celebrating the 50th Anniversary of FIRE ENGINEERING, our morning mail seldom fails to bring some interesting evidence of the kindly regard our friends have for the old paper.

¶ The following extracts are typical of this splendid spirit:

¶ "This is my fifth year as a subscriber to your magazine and I don't want to miss a single issue. I give it great credit for helping me pass my promotion examinations."

J. L. H.

¶ "Enclosed find P. O. Money Order for $12.50 for five years' advance subscription to FIRE ENGINEERING, at your special rate. I can't be without it!"

J. J. G.

¶ And this: "I received the copies of FIRE ENGINEERING, which replace those lost in the mail through no fault of yours, and I want to extend my appreciation and thankfulness to your magazine. Your methods and good will towards your readers if practiced by all business firms would uplift the spirit of brotherhood and faith in one another.

¶ With best regards for continued success for FIRE ENGINEERING, I remain a constant reader,"

J. G. P.

The Publishers

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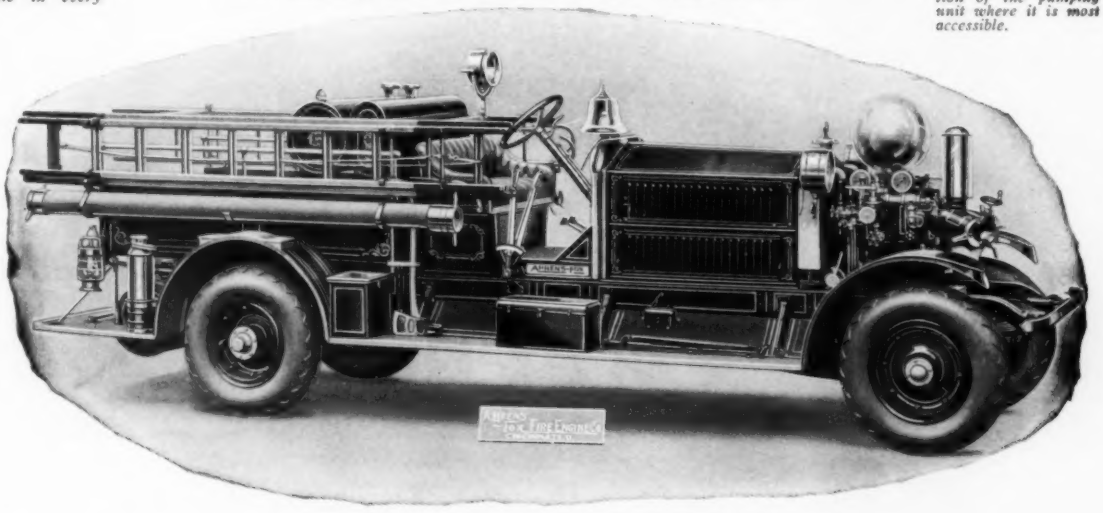
Contents of this issue copyrighted, 1927, by Case-Shepperd-Mann Publishing Corp., 225 W. 34th St., New York City
Entered as second class matter at the Post Office, Albany, N. Y., January 29, 1926, under the Act of March 3, 1879.

New Ahrens-Fox pumper — Complete, up-to-date, thoroughly dependable in every detail.

"Nothing is too good for fire service, and nothing but the best will do."—Ahrens-Fox.

Note the balanced and sturdy construction and the practical position of the pumping unit where it is most accessible.



Modern Ahrens-Fox Apparatus

with twin pumping plant and super-powered fire apparatus motor is the standard of quality

Fire officials throughout the country who are alive to their public responsibilities invariably place quality—efficiency and dependability—above price and every other consideration in the selection of apparatus.

When the lives of their fellow-citizens, and their children, to say nothing of property valued at hundreds of thousands of dollars, are dependent for safety against fire upon the perfect operation of their equipment in every emergency, the selection of apparatus other than the best money can buy is unpardonable folly.

Fortunately, fire chiefs, commissioners, and other municipal officials who have the say-so in the purchase of fire department equipment are more and more coming to realize this fact, and are giving the selection of apparatus the careful consideration the work deserves.

Almost as naturally as day follows the night many of these up-to-date officials turn to Ahrens-Fox apparatus as the standard of quality in the comparison of the relative merits of apparatus of various manufacture.

There can be no question but that this recognition of Ahrens-Fox supremacy is justified by the facts. The service records of Ahrens-Fox apparatus in use everywhere back up their high regard to the limit. Ahrens-Fox performance and supremacy are made possible by the painstaking investigations and thoroughly practical work of Ahrens-Fox fire apparatus engineers who have devoted their lives to this work, by the use of only the finest materials obtainable, by modern manufacturing machinery, and by the employment of especially highly skilled workmen.

To all fire officials we shall be glad to send complete information on request. No obligation, we just want you to have the facts. A postal with name and address will do.

May We Send You Complete Information?

The Ahrens-Fox Fire Engine Co.

"Builders of Quality Fire Apparatus"

Cincinnati, Ohio

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New England Representatives
CARLOW AUTO CO.,
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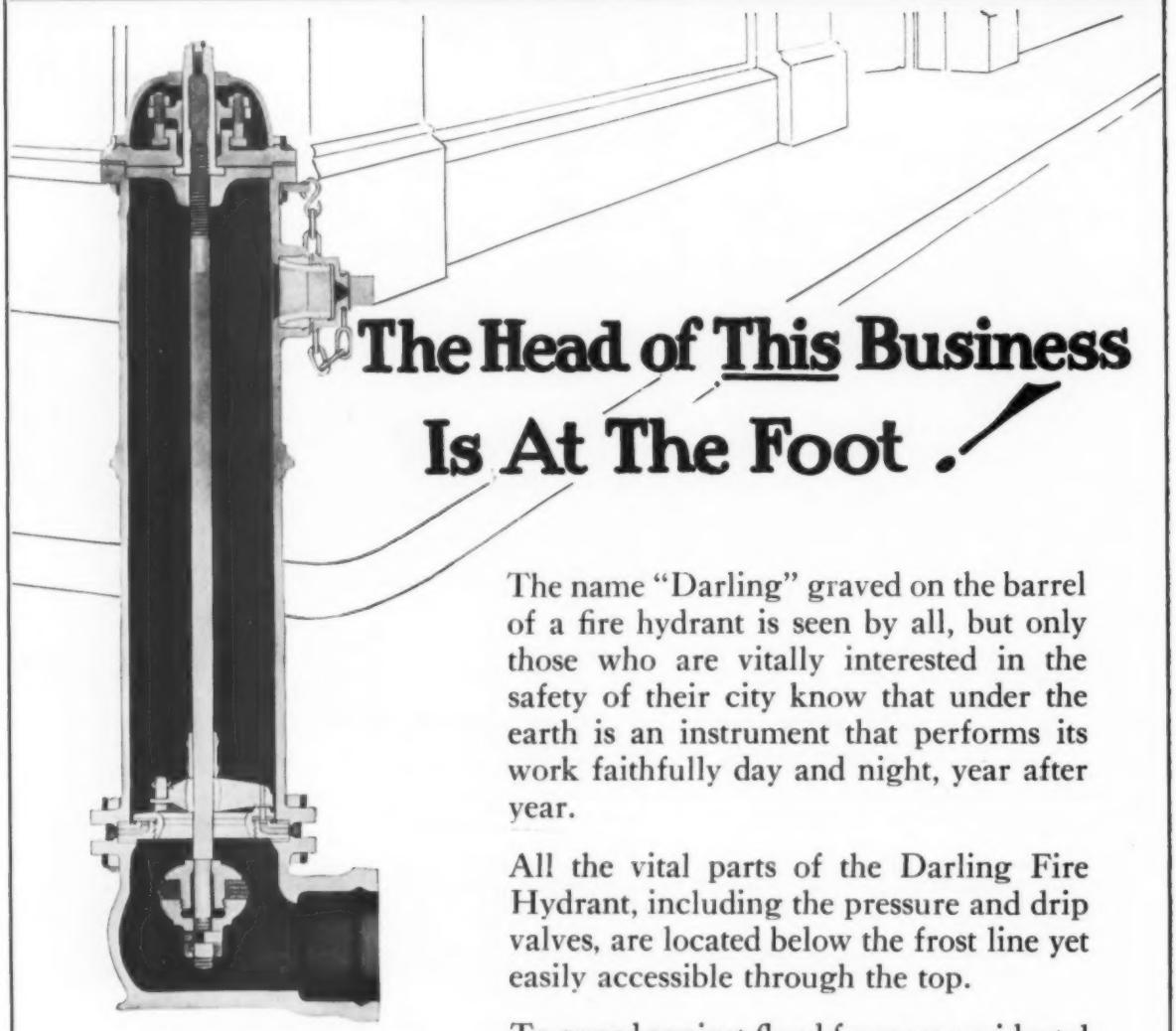
San Francisco, Cal.

Pacific Northwest Representative
A. G. LONG CO.
Portland, Ore.

Canadian Representatives
THE BICKLE FIRE ENGINE CO.,
Woodstock, Ontario



The Head of This Business Is At The Foot

The name "Darling" graved on the barrel of a fire hydrant is seen by all, but only those who are vitally interested in the safety of their city know that under the earth is an instrument that performs its work faithfully day and night, year after year.

All the vital parts of the Darling Fire Hydrant, including the pressure and drip valves, are located below the frost line yet easily accessible through the top.

To guard against flood from an accidental breaking of the barrel, Darling's pressure valve closes with the pressure. A bent stem only draws the valve tighter and prevents any escape of water.

Our catalogue will give you complete information on Valves and Fire Hydrants. Write for it.

DARLING VALVE & MANUFACTURING COMPANY

WILLIAMSPORT, PA.

New York Chicago Oklahoma City Houston

DARLING

FIRE HYDRANTS

ANNOUNCEMENT

by

AMERICAN-LAFRANCE FIRE ENGINE COMPANY, INC.

and

Foamite-Childs Corporation

EFFECTIVE November 15, 1927, the American-LaFrance Fire Engine Company, Inc., of Elmira, N. Y., have acquired the assets and good will of the Foamite-Childs Corporation of Utica, N. Y., and the business of the two companies will be combined under a single corporate identity. The name of the company will be the American-LaFrance & Foamite Corporation.

For 82 years American-La France has been recognized as the leader in the development and production of modern fire-fighting equipment. More than 90% of the fire departments of this country are using American-LaFrance motor apparatus, extinguishers, and accessories. Also in industry, American-LaFrance represents the standard in scientific, dependable fire apparatus.

With long, successful experience in the manufacture of motor fire trucks, the American-LaFrance Company has also produced a complete line of heavy-duty commercial motor trucks which have gained recognition in every industry.

Foamite-Childs Corporation has been successful in the manufacture and distribution of certain types of fire protection equipment. They have developed the modern foam method of fire control (Foamite Protection) now widely used for safeguarding industrial, municipal, marine and private property.

THE combining of these two successful organizations brings under centralized direction and operation a body of engineering experts whose specialized experience makes possible a breadth and completeness of service never before approached.

The combination, AMERICAN-LAFRANCE & FOAMITE CORPORATION, will maintain sales offices and engineering representatives in all the principal cities of the United States and Canada. Affiliated companies will operate in foreign countries.

Added Safety

STEEL wheels for chemical fire engines have been the subject of extensive research and experimental work for French & Hecht engineers.

As a result, French & Hecht are producing superior wheels for chemical fire engines and other equipment in that class. These wheels are mechanically correct and of stronger construction. They withstand the severe strains of emergencies and last longer than other types of wheels.

These wheels are made in large quantities in the most efficient factory in America specializing in steel wheels. So efficient are French & Hecht manufacturing facilities that a distinct saving in cost of wheels can be effected in most instances for manufacturers of wheeled equipment. Any information concerning wheels will be gladly supplied. Write.

The important features that distinguish French & Hecht Steel Wheels are:

Trussed spoke construction.

Each spoke is heated and forged in the hub with the end headed on the inside and a shoulder formed on the outside — similar to a boiler rivet.

The spoke is secured to the rim with a head riveted on the outside and a shoulder forged on the inside.

These are exclusively French & Hecht refinements.

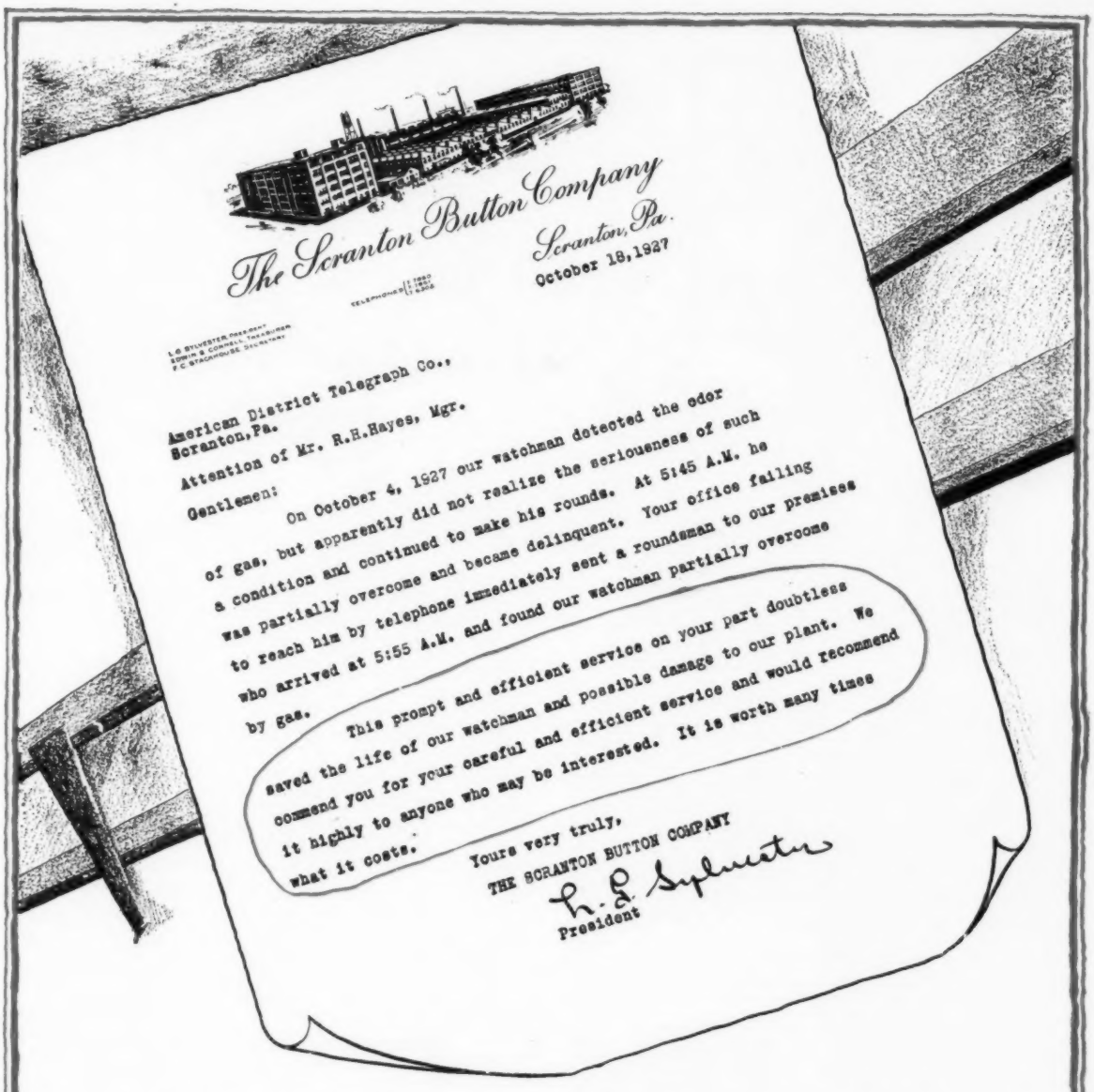
FRENCH & HECHT

Wheel Builders Since 1888

DAVENPORT, IOWA SPRINGFIELD, OHIO

FRENCH & HECHT

STEEL WHEELS


The Scranton Button Company
Scranton, Pa.
October 18, 1927
American District Telegraph Co.,
Scranton, Pa.
Attention of Mr. R.H.Hayes, Mgr.
Gentlemen:
On October 4, 1927 our watchman detected the odor of gas, but apparently did not realize the seriousness of such a condition and continued to make his rounds. At 5:45 A.M. he was partially overcome and became delinquent. Your office failing to reach him by telephone immediately sent a roundsman to our premises who arrived at 5:55 A.M. and found our watchman partially overcome by gas.
This prompt and efficient service on your part doubtless saved the life of our watchman and possible damage to our plant. We commend you for your careful and efficient service and would recommend it highly to anyone who may be interested. It is worth many times what it costs.
Yours very truly,
THE SCRANTON BUTTON COMPANY
President

TYPICAL OF ADT PROTECTION SERVICE

The above letter of commendation tells its own story of the efficiency and effectiveness of ADT property protection service.

It also serves to illustrate the fact that no matter how efficient a night watchman may be he is in constant need of the protection and supervision of an outside agency, such as ADT.

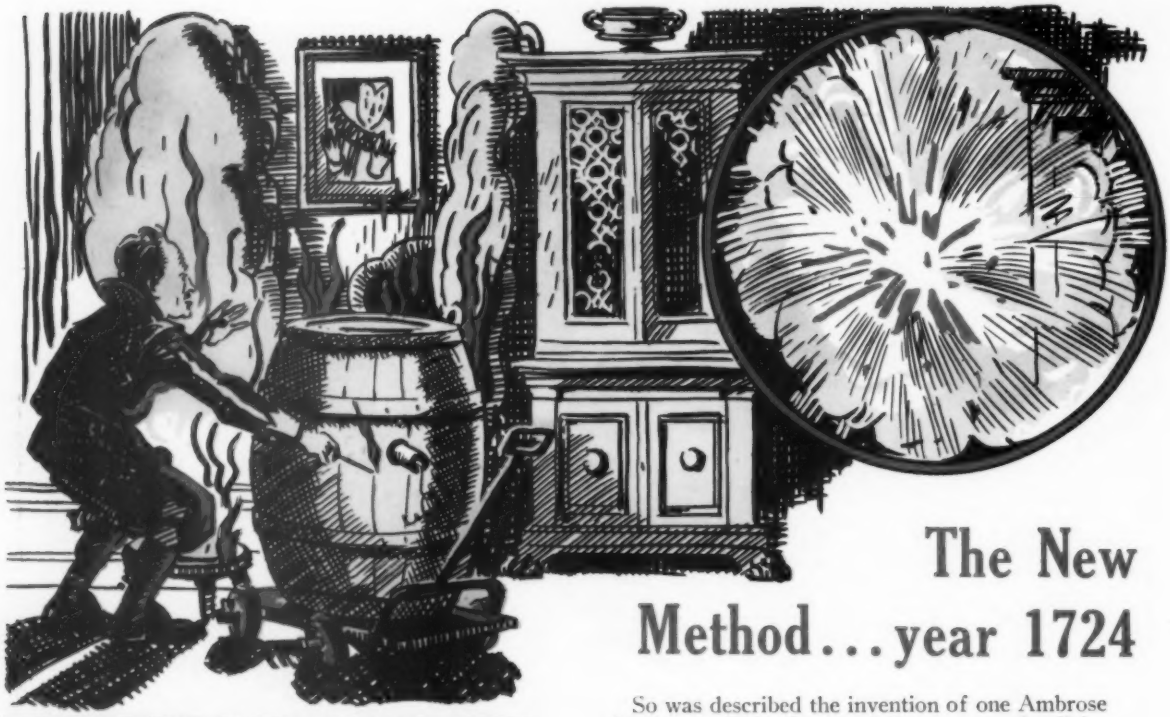
ADT Night Watchman Supervision Service, the service responsible for the saving described in the letter, is only one of a family which is protecting $20,000,000,000.00 worth of property against Fire, Theft, and Watchman's delinquency.

Let us tell you how and why.

Controlled Companies

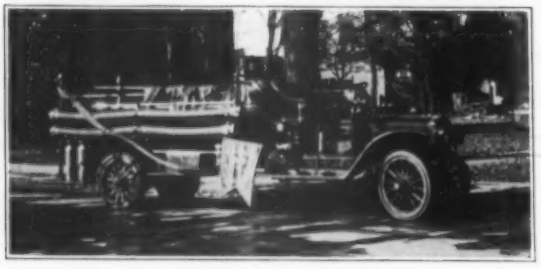
AMERICAN DISTRICT TELEGRAPH COMPANY
183 Varick Street, New York

A.D.T. SYSTEM



The New Method... year 1724

So was described the invention of one Ambrose Godfrey. This fire annihilator was simplicity words of the inventor, *"The New Method containing a small charge of gunpowder.* In the words of the inventor, *"The New Method consists of Gunpowder closely confined, which, as soon as animated by Fire, acts by its elastic Force upon the Water and divideth it instantly into Millions of Millions of most minute and imperceptible Atoms, which with equal Violence and Swiftness are immediately forced into the innermost recesses of the Flames, and insinuating themselves into the Very Pores of the Walls, Ceiling, Floors, and Moveables contained in the flaming Apartment, at one touch and utterly extinguish the Fire, by which Time enough is allowed to Servants or other Assistants to enter the extinguished place, and with wet Mops to expunge the few remaining fiery characters."*



In its tenth year at Cresco, Iowa.

Cresco, Iowa
October 26, 1927

Northern Pump Company
Minneapolis, Minnesota

Dear Sirs-

In reply to your letter, we wish to state that we have been very well satisfied with the service which the Northern Rotary Pump has given us. This pump has been in service for more than nine years and since then, there has never been a fire that this pump did not overcome before any great damage had been done. This is partly due to the quick response of the firemen, but most of all to the dependability of the pump after arriving at the scene of the fire

This pump was tested late this summer and tested 100%. We think this should be recommendation enough for the best pump put out by any company as old as this one.

We are enclosing three pictures of our pump truck for your use, and we remain a constant booster of the Northern Rotary Pump.

Very truly yours,

Cresco Fire Department,
Bernard Staebell
Fire Chief

The truck shown is entering its tenth year of satisfactory service in the town of Cresco, Iowa. The Northern Rotary Pump built into the chassis has played a great part in winning the admiration and affection of its crew. As Chief Staebell says "we remain a constant booster for the Northern."

Northern Pumps may be obtained as standard equipment in fire apparatus sold by thirteen manufacturers of fire equipment. Write for complete information to the Northern Rotary Pump Company, 900 18th Ave., N. E. Minneapolis, Minn.

NORTHERN ROTARY PUMPS

"MORE GALLONS PER HORSE POWER"

FIRE ENGINEERING

(A Consolidation of Fire and Water Engineering and The Fire Engineer)

The Journal of the Fire Protection Profession

VOLUME LXXX NOVEMBER 30, 1927 NUMBER 24

Thousand Automobiles Go Up in Smoke

New York Has Five Alarm Warehouse Blaze—Proprietor of Business Goes Back Into Building and Is Killed

By WILLIAM JEROME DALY

NEW YORK CITY had a five alarm fire on Wednesday, November 16—the first five alarm blaze in many months and it spoiled what otherwise had been a recently good fire record and set the big town back a bit on losses—probably a million dollars, since nearly 1,000 automobiles were totally consumed and a big but ancient warehouse wrecked by the explosion and consequent fire which raged for three hours.

There was a loss of one life—the warehouse man himself, Jay A. Mellish, who had escaped from the building, but for some reason ran back into it and was never seen alive again. His body was recovered on the following Saturday, in a sitting position in an automobile, a victim of suffocation rather than burning. Firemen overhauled the ruins day and night, under the direction of Deputy Fire Chief William Clark, until Mellish's body was recovered.

Building Erected in 1885

The building was erected in 1885 and until a few years ago had been a sheepfold for the New York Central's live stock freight terminal. It was four stories, brick, mill constructed, non-fireproof, without sprinklers or firestops, but equipped with an interior fire alarm. It covered an area of 200 x 300 and occupied half the block bounded by 59th Street and 60th Street from 11th to 12th Avenues, a stone's throw from the waterfront. To the south was the towering power house of the Interborough Rapid Transit (subway) System. To the west was a duplicate storage building, separated from the building afire by a fifteen-foot alley cutting through from 59th to 60th Street. To the north were terminal pits and tracks for flat and box cars of the railroad and to the east across 11th Avenue were miscellaneous structures, mostly of non-fireproof type.

Occupancy of the Building

The occupancy was mainly the storage of automobiles in transit from manufacturer to dealer and the cars were owned by the Auburn, Hudson, Marmon, Van Alstyne, Uppercu Cadillac, Morris, Essex, Sherwood, Reo and Garland manufacturers. In the basement was the United Feed Company. On the southerly side of the ground floor was the Rose & Co.'s stove works.

Jay A. Mellish, who leased the building from the New York Central Lines, carried no insurance. He was a middle-man—he didn't own the building, nor the contents. On Tuesday, November 15, he shipped his 40-foot motorboat "Privateer" into the building from a flat car to put the craft away for the winter. The boat was on skids on the ground floor near the office of the warehouse. The morning of the fire, he had put one of his handymen to work on the craft, tightening up and otherwise trimming ship for the lay-up.

Explanation of Origin of Fire Does not Satisfy

The handyman later told Chief Fire Marshal Thomas P. Brophy that while he was slamming a cabin window

Upper, Fighting the Warehouse Blaze at Its Height. Lower, Wetting Down After Fire Was Under Control

General View of the Big Fire in the J. A. Mellish Automobile Storage Warehouse, New York City, a Five Alarm Blaze in Which One Life Was Lost and 1,000 Automobiles Destroyed

shut the boat keeled over in her cradle and some tools which were on deck fell through an open window and landed on the floor of the cabin where the impact caused an explosion—he didn't know from what—and that he was burned about the hands and face.

Chief Brophy is not satisfied with the explanation. He feels, as do others, that the handyman was in all probability dismantling the engine or doing something more than merely closing up the cabin. This theory is supported by the presence of the tools on the deck. Investigators for the Fire Department are still of the opinion that the gasoline tank, or the gas line, or the residue of the bilge figured in the origin of the fire.

Proprietor Goes Back to His Death

At all events, there was a flash fire. The explosion indicates this and the handyman, along with two other workmen of the Mellish concern, was confronted by so much instantaneous fire that they fled down the nearest stairway to the cellar and along the cellarway to another stairway which they ascended. The two workmen took from the handyman's pocket the keys to the doorway to the street and let themselves out. In the street, on the north side of the building, they saw Mellish's car, into which they placed the burned handyman and rushed him off to a hospital. Mellish, in the meantime, had fled to the street, but he was seen by at least three other of his employees to run back into the building. He had not seen the burned handyman, and Chief Brophy thinks that the employer may have thought of his workman and ran back to get him, not knowing that he was out and on his way to a hospital.

Building Involved when First Companies Arrive

By the time the first engine companies arrived, the old structure was controlled by fire—not due to any delay on the part of the department but rather to the rapidity of a fire of that character.

The first signal was the building box, class 3-931-23 at 11.39 a. m., followed instantly by the street box 931. The first chief officer was Charles Duane of the 9th Battalion. On the first alarm he got three engines, two fireboats, two trucks, Deputy Chief William Clark, and the chief of the 8th Battalion. Second alarm at 11.45 a. m. bringing four engines, Rescue Co. 1, one truck,

Water Tower Demolished by Collapse of Warehouse Wall

Deputy Chief John J. McElligott of the Marine Division, Boat Tender No. 1, Water Tower No. 3, Fuel Wagon (gas-oil) No. 2; four engines and one truck changed location; third alarm at 11.46 a. m. bringing Chief of Department John Kenlon, Assistant Chief of Department Thomas F. Dougherty, five engines, one fireboat, one truck, chief of the 7th Battalion, Department Ambulance in charge of Dr. Harry M. Archer

(*Continued on page* 1229)

Relation of Hydraulics to Fire-Fighting

Laws Affecting Pressure and Flow of Streams—Use of Large and Small Hose Sizes—Capacity of Hydrants

By DAVID S. THOMAS, Engineer, Board of Fire Underwriters of the Pacific*

A WORKING knowledge of the science of hydraulics is an essential for the successful fire-fighter. The following paper deals with this important subject both effectually and simply and will be found of interest to the studious fireman:

The subject of hydraulics is a very complex one. I shall try and confine myself to the hydraulic problems which present themselves to you every time you have occasion to use water upon a fire; the weak and strong points in your water distribution system, hose friction, and factors necessary for the successful operation of automobile pumping engines.

Early in the sixteenth century, Galileo stated that the laws controlling the motion of the planets in celestial space were much better understood than those controlling the motion of water upon the surface of the earth. This is still true today, for the theory of flow of water in pipes and channels has not yet been perfected. Experiment is now in advance of theory, so I will confine myself to the laws as determined by experiment.

The Theory of Suction

The air on the surface of the earth exerts a pressure, varying from 14.7 pounds at sea level to about 12 pounds at the higher elevations such as we have here in Montana. This property of the air is relatively unimportant for the most of you firemen, but I mention it for the part it plays in the operation of automobile pumping engines when taking water from draft.

Suction may be termed the reverse of pressure, the same as pulling is considered the reverse of pushing. But the term of suction is misleading. The conception of sucking water as the act of pulling or drawing the water is erroneous, for to draw or pull an object prescribes the necessity of having some sort of connection to it. In the case of sucking water, the pump, such as the piston or rotary, first exhausts the contained air in the suction hose, the air pressure on the outside now pushes the water inside of the hose to take its place to the pump, which acts upon the water to force it through hose lines or pipes as the case might be.

Now you have the reason why it is so essential to have your suction hose in good condition, and why it should be what is called hard suction, if the pump is to be used at draft since if it were otherwise, the pump in exhausting the air would merely result in the collapse of the hose, on account of the air pressure being on the outside only. If the suction hose is in poor condition, or the joints leak air, the pump cannot create the necessary vacuum, which is the first step in order that the outside air may push the water up into the suction line.

Fire engines in good condition can lift water a vertical distance of about twenty-five feet at sea level. In other words, they can reduce the air pressure inside of the suction hose, so that the 14.7 pounds of air pressure forces the water up vertically for a distance of twenty-five feet. If the pump is stationed one mile above sea level, the atmospheric pressure is only twelve pounds, which means that the air pressure will push the water up twenty-one feet.

Reason for Water Flowing Down Hill

Experiment has proven conclusively that when water flows down hill that it follows the same law of gravity as any other object in falling to the ground. This relation is particularly important in considering the flow of water from playpipes, nozzles, etc., as it has been proven by experiment that the theoretical velocity of water acquired by a freely falling body through a height equal to the height or head of water on the orifice. One proof of this is by experience. When a vessel is arranged so that a jet of water from an orifice is directly vertically upward, it is known that it never attains to the height of the level of water in the vessel, although under favorable conditions it nearly reaches that level. It may hence be inferred that the jet would actually rise to that height were it not for the resistance of the air and the friction of the edges of the orifice. Now, since the velocity required to raise a body vertically to a certain height is the same as that acquired by it in falling through that height, it is regarded as established that the velocity at the orifice is that stated in the theorem.

Friction Loss in Long Pipes and Hose

I think that we should touch upon the laws of friction loss in long pipes and hose, for these laws operate every time a fireman connects to a hydrant. These laws are especially important to the fireman, since excessive friction loss reduces the effective working pressure more than any other factor entering into fire fighting, and a knowledge of the laws and the way in which they operate together with a knowledge of the distribution system may enable him to make the best use of the weapons at hand for serious fires.

Many observations have been made upon pipes of different sizes and lengths under different velocities of flow, and the discussion by many men engaged in this study has enabled the approximate laws I am going to dwell upon to be deduced which govern the loss of head in friction, and tables be prepared for practical use.

The first law is that the loss of head by friction varies directly with the length. This hardly needs any discussion for all it means is that if a hose line is doubled in length, the friction loss is also doubled, providing that the velocity of flow remains constant.

The second law is that the friction loss varies approximately as the square of the velocity of flow in the same size pipe or hose line. To state it in another way, the friction loss increases very much faster than the velocity of flow; if the velocity of flow is doubled, the friction loss is increased four times; if tripled, nine times as much; if quadrupled, sixteen times as much, etc.

For the same discharge, the friction loss is inversely proportional to the diameter of the pipe or hose. This calls attention to the fact that if the diameter is doubled, the friction loss is reduced one-half, providing that the same quantity is discharged in both cases.

The fourth law states, that for a given velocity of flow, that friction loss is about the same no matter what the pressure may be. This law causes more or less confusion, but it should always be remembered the pressures on fire hose has no effect on friction loss as long as it does not change the velocity of flow; for instance, if the velocity of flow of water through a hose line is fifteen feet per minute, the friction loss is the same whether the pressure is one hundred or two hundred pounds.

The fifth law is that friction loss increases with the roughness of the interior surface. This is self-evident for it is easily seen

* From a paper read before the annual convention of the Montana State Firemen's Association, at Helena, Mont.

"IT goes without saying that every department should be prepared for eventualities. In answering an alarm where the fire cannot be seen from the outside firemen should enter the building with first aid appliances; never empty handed; and they should always be backed up with the 'heavy artillery'."

that the smoother a pipe or hose line is made, that the friction loss will decrease in much the same ratio.

Practical Application of Laws

For a practical application of these laws, we will compare the friction loss in equal lengths of four and six inch pipe, and this will show just why the Underwriters and the firemen who have had experience with small pipe, condemn the use of four-inch pipe in water systems.

For the purpose of comparison, we will take five hundred feet of four-inch pipe supplied from a twelve-inch main, and an equal amount of six-inch pipe under the same conditions. We will also assume that there is double hydrant at the end of each of these pipes, and that we wish to find what static pressure is required to supply five hundred gallons per minute equivalent to two standard hose streams, at good hydrant pressure for effective streams. We will supply each of the above laws in order, and show their effect.

Applying the Second and Third Law

The first law we can neglect, since the length is the same in both cases. The second law states that the friction loss varies with the square of the velocity. With a five hundred gallon per minute discharge, the velocity of flow in a four-inch pipe will be much greater than in a six-inch pipe on account of the smaller area of cross section; 12.5 square inches as compared with 28.6 square inches, for the six-inch pipe. It might be well to explain here that the volume of discharge is equal to the area of cross section multiplied by the velocity of flow. Working this out, we find that the velocity of flow in a four-inch pipe is 12.8 feet per second, and 5.7 feet per second for a six-inch pipe. Working out the law, we find that the friction loss in four-inch pipe is five times greater than that in a six-inch pipe due to the difference in velocity.

Heavy Friction Loss in Four-Inch Pipe

We also find that the third law operated in favor of the six-inch pipe since it states that friction loss varies inversely with the diameter. Substituting the figures, we find that the friction loss for six-inch pipe is two-thirds that of the four-inch. For the purposes of this discussion, we can neglect the other two laws, since we can assume that the pressures are the same in both cases, and that the interior pipe surfaces are equally smooth.

We find that five hundred feet of four-inch pipe causes a loss of fifty-two pounds in discharging five hundred gallons per minute, while the loss in a six-inch pipe under the same conditions is but 7.2 pounds. Assuming that fifty pounds hydrant pressure, is sufficient for direct streams using ordinary lengths of hose, we find that the required static pressures are one hundred and two pounds for the four-inch, and fifty-seven pounds for the six-inch line, which shows very well how a four-inch line cuts down the pressure in delivering large quantities of water that are necessary for fighting fire.

Chicago's New Fire Chief Assumes His Duties

Michael J. Corrigan, newly appointed chief of the Chicago fire department took up his official duties on November 2. Chief Corrigan is a fire-fighter of long standing and holds several awards for bravery in action.

Painting Fire Hydrants Color According to Delivery

High static pressure is not a measure of the effectiveness of a water distribution system; the size and arrangement of the underground piping is equally important. No doubt you men have found that some parts of your local distribution systems will supply one or two good fire streams easily, but when you try to hook additional lines of hose, you find that the pressure drops excessively in delivering the additional quantities. An exact knowledge of what the distribution system can deliver at good pressures is very essential and I believe that the practice of some fire departments has very much to recommend it, and that is painting hydrants different colors, depending upon how much water they can deliver. For instance, paint a red top on a hydrant if it can deliver two good streams, at good pressure; the next hydrant a different color if it can deliver but one good hose stream, and so on.

Friction Laws for Hose Lines

The same friction laws as stated before hold true for hose lines, and the larger diameter hose will show the smaller friction loss for the same quantities of water. All the larger sized hose are equipped with the two and a half inch beveled couplings since it has been found by experiment that the increased friction loss due to their use is very slight, and this disadvantage is more than outweighed by the use of a standardized coupling in the department. Referring to hose friction tables, we find that for a flow of two hundred and fifty gallons, the friction loss in one hundred feet of two and a half inch hose is fourteen pounds, 5.5 pounds for three-inch hose of equal length; and 2.5 pounds for three and a half inch hose. If two one hundred foot lengths of two and a half inch hose are siamesed into one tip, the friction loss is about four pounds.

Whatever power is used to force water, it is too valuable to be wasted in friction loss. Good fire departments practice demands that as much pressure as possible be brought to the nozzle.

Larger Fire Departments Should Use Larger Hose

The Underwriters recommend that the larger fire departments use the larger hose, especially where over five buildings in the principal mercantile district are three stories or more, and where over one thousand gallons of water per minute are available at good hydrant pressure at the weakest point of the distribution system. Large hose is hard to handle, and for that reason should not be carried inside of the building; good results will be obtained if the first one hundred or two hundred feet next to the hydrant is three-inch or larger, and then the two and a half inch hose is carried inside of the building. The use of large hose adds one store to the effectiveness of the fire streams; to illustrate—if a line of two and a half inch hose will put water to the second story, a three-inch line will put the water to the third story.

In this connection, another suggestion has been made that all automobile pumpers should have a card tacked on them to show what pressures are necessary for different hose lines. A case has been reported where a thousand gallon per minute pumper was delivered to a town with a hundred per cent volunteer fire department. A time came for the use of a single short line of hose on a fire with the pumper taking suction, but the volunteer operator not being fully versed in the use of the pump, operated it at first with the throttle in a wide open position, with the result that the boys on the end of the hose had the time of their lives. Luckily no one was injured, but a card with the necessary information on it would help the operator and also benefit the men actually handling the nozzle. The operators should also be instructed to speed up the pump to the required pressure gradually so that the men handling the nozzle have a chance to brace themselves. They have a hard time at the best, and anything to help them helps the spirit of the fire department.

Effect of Small Tips on Long Lines

The question has been asked, does the use of small tips, especially on long hose lines or at weak points of the distribution system actually increase the pressure? When discussing the effect of gravity on the flow of water, you will remember that it is one of the laws proven by experiment that velocity pressure can never exceed the static head. But you ask, why is it that if a smaller tip is used, that the stream is thrown farther. The smaller tip cuts down the flow of water, and we have learned that friction loss varies with the square of the velocity. If the flow of water is cut down one-half, the friction loss is decreased one-fourth. This saving in friction loss, now appears as pres-

(*Continued on page* 1219)

Volunteer Force Holds Big Fire

Confines Blaze to Single Building Although it Had Good Start—Three Companies Available

THE fire described in this article of the series on administration is unique in that it was fought by a volunteer department composed of two companies, together with the assistance of a neighboring department having but a single hose and chemical truck.

The city in which this fire occurred has a population of approximately 10,000 and is located in the western part of the country. The water supply was excellent, 150 pounds being maintained at the hydrant for the early part of the fire, and this being increased to nearly 350 pounds later on. Plenty of hydrants were within reasonable distance.

The Fire Department

The fire department consists of one combination chemical and hose truck carrying 1,650 feet of hose and one combination chemical and hose truck carrying 1,150 feet of hose.

The department is volunteer, being made up of fire chief, assistant chief, driver, fire marshal, and 10 volunteer firemen.

The department of the neighboring town which was called on to assist was made up of one hose and chemical truck company and seven volunteer firemen.

Any alarm in the business section of the city brings out two companies.

Description of Property Involved

The property involved and that immediately surrounding it is shown in the diagram herewith.

The fire building was one story in height, brick walls and with galvanized iron roof. The basement extended from the rear to a line about half way through the building. In other words the basement was about half the area of the building.

A billiard parlor occupied the larger portion of the floor while various shops made up the remainder as shown in the diagram.

This building is what might be termed a "pioneer" building, being one of the first erected in the business section of the city. To the right of the fire building as shown in the diagram was a structure occupied by the West Side Fruit Company while to the left was a men's furnishing store.

Contents of Buildings

The contents of the billiard parlor were such as are usually found around establishments of this type. The occupancy of the cigar store, barber shop and restaurant were typical.

Towards the rear of the billiard parlor was a small work shop as indicated by the letter I. A stairway leading to the basement was located at the point indicated by J.

The Fire

The fire started on a warm fall night shortly after midnight. The billiard parlor and cigar stand were closed but a few minutes when the alarm was turned in by 'phone and also by a box located at the corner of 5th and Center Streets. Apparently the fire started in the basement or near the basement and this portion of the building was well involved by the time the department arrived. Fire apparently extended either beneath the floors or otherwise to the restaurant building.

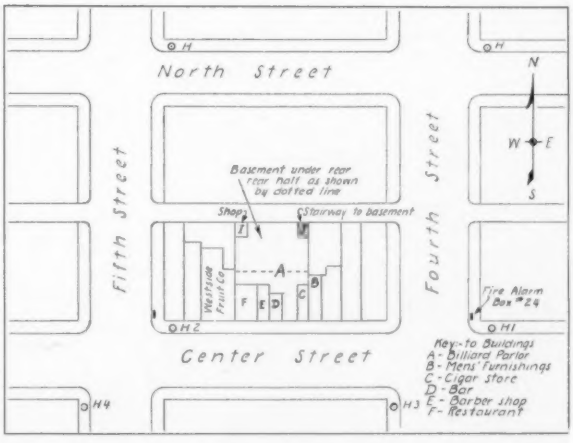
When the department arrived there was a great deal of smoke which made it hard for the volunteers to get in close to fight the fire at short range.

The fact that the floor over the basement gave way shortly after the arrival of the department would indicate that the fire had been burning for some little time in the basement.

How the Fire Was Fought

Upon receipt of the alarm the two hose and chemical companies responded along with the fire chief, the assistant chief, the driver and the fire marshal. Upon his arrival the chief ordered a line laid from hydrant No. 1 at 4th and Center Streets to the front of the fire building. A second line was ordered laid from hydrant No. 2 to the alley in the rear of the building. A third line was laid from hydrant No. 1 to the rear of the building.

Noting the seriousness of the situation a second alarm was turned in calling out the South Side Volunteer Department which arrived with their equipment



and laid a line from hydrant No. 3 to the front of the building.

After the lines were laid the first truck from the department went to hydrant No. 4, while the South Side Department connected up again at hydrant No. 3 in case it was needed. The second truck of the department went to the rear of the building in the alley, it being so dark there that a searchlight had to be used. Practically all operations were conducted from the outside of the building, the department depending upon wetting down the fire and thus holding it from extending to adjacent buildings.

A second line was stretched from hydrant No. 2 to the front of the building and operated into the restaurant.

After a fight of over five hours, the fire was finally extinguished.

As it was, the fire was confined to the single building, there being no fire damage to buildings on either side with the exception of that caused by water and smoke.

The Editor's ideas on the handling of this fire will be given in the next issue of this journal.

Free Advisory Service Available

Municipalities desiring to better their fire protection facilities may now have the advice and service of an expert, without any charge whatsoever.

William S. Winnard

The Ohio Inspection Bureau of Columbus, Ohio, have appointed William S. Winnard as field agent to visit communities to instruct firemen in modern fire methods, to talk before civic organizations and to inspect hazardous mercantile and manufacturing buildings.

Mr. Winnard was formerly a battalion chief and later superintendent of machinery in Columbus Fire Department where he served for twenty-eight years. For the past six years he has been standardizing hose and hydrant fittings in Ohio. He will spend as much time in each community as local conditions warrant and the Bureau will bear the entire expense of his visit.

As the burden of reducing the appalling national fire loss lies with each individual community, the Bureau has inaugurated this service in the hopes that it might become a decided factor in the reduction of fire losses. As there will probably be a great demand for Chief Winnard's time, the officials of the Bureau urge that officials write to learn of the days when Chief Winnard will be available.

Keystone Chiefs Meet in Reading

The twenty-sixth annual convention of the Keystone Fire Chiefs' Association of Philadelphia was held in Reading, Pa, on November 19 at the Elks Home. This is the first time that the association has met outside of Philadelphia because of an old clause in the by-laws that made it imperative to meet there.

Chief Ross B. Davis

After an informal reception the meeting was called to order by President Frank Sole, of Coatsville. Rev. Frank Rugh of Bernville, Pa., chaplain of the Berks County Firemen's Association, offered prayer. The chiefs were welcomed by William J. Smith, superintendent of the department of public safety, Reading; Chief Ross B. Davis, of Philadelphia, responded for the association.

Chief Neithammer of Reading, Chief Lutz of Wilmington, Del., and Chief Landis of Bareville, Pa., presented a report on the campaign to eliminate avoidable fire hazards. Other committees also reported.

Chief Ross B. Davis of Philadelphia was unanimously elected president for the coming year. The other officers for the new term are George Lee, Royersford, first vice-president; Charles M. Stoner, Reading, second vice-president; E. O. Hartman, third vice-president; Fred Heed, West Chester, recording secretary (he has filled this office since the association was established); A. M. Bordihn, Moore, financial secretary; Olanda H. Smith, Darby, treasurer; Thomas J. Jones, Phoenixville, trustee.

Following the election 165 attended a barbecue dinner. There was a number of vaudeville entertainers.

There were many interesting papers presented on fire department problems. President-elect Davis explained the new eastern district organization of the International Association of Fire Chiefs and recommended that all members of the Keystone Chiefs organization affiliate with the national body. A committee was appointed to look into this matter and to report at the next meeting that will be held in Labanon, Pa.

Before the delegates left for home, Chief John G. Neithammer of Reading, presented them with a souvenier remembrance of the convention.

Chief Boyle Active Leader

During Fire Prevention Week, the Jersey City, N. J., fire department under the leadership of Chief Roger Boyle distributed over fifty thousand copies of "fire don'ts" to the pupils of thirty-eight public and nineteen parochial schools.

Chief Roger Boyle

Various classes of property were inspected and refuse ordered removed. Signs were distributed to factories, industrial establishments and retail stores as well to the various amusement places in Hudson county.

Officers and firemen lectured on fire prevention in the various schools and they were later complimented by the school officials for the very clear manner in which they presented their subject matter. Drills were held in the schools and amusement centers. Motion pictures on fire prevention subjects were exhibited in some of the public and parochial schools.

Fire drills were held in the larger factories and industrial plants and the department received the fullest cooperation from the plant superintendents and officials.

All in all, nearly 100,000 people in Jersey City were reached through the talks and drills under the auspices of the fire department.

Plans Made for Arizona Convention

The program has been arranged for the convention of the Arizona State Firemen's Association that will be held in Bisbee, Arizona, on May 10-12, 1928.

On Wednesday evening, May 9, there will be a stag smoker at which time there will be registration of members. Much of the routine business of the association will come up on Thursday, May 10, and there will be a banquet and entertainment for visitors and the ladies at the Elks Club.

The following addresses will be delivered on Friday, May 11: C. W. Withers, of the Arizona Equitable Insurance Rating Bureau, has been assigned a place on the program. Phil Hollingsworth, Flagstaff, Cooperation of Fire Departments; W. D. Simmons, Phoenix, First Aid at Fires; J. J. Murphy of Warren, Organization and Equipment for Volunteer Fire Departments; George Jackson, Winslow, Uses of 1½-Inch Hose; Alex McNeil, Tucson, Salvage Corps Work; Gus Nicholls, Nogales, Standardization of Hose Threads.

At noon there will be a motor ride to Agun Prieta, Sonora, Mexico, and a buffet luncheon at 1:30 p.m. at No. 2 Engine House, Douglas. A business session will be held at the Elks Club in Douglas and at 5 p.m. there will be a trip through the smelters. In the evening a banquet and entertainment has been arranged for visitors and ladies at the Elks Club in Douglas.

Election of officers will take place on the morning of May 12. In the afternoon there will be a trip through the mining district and later a number of water fights. The committee hopes to make this a long remembered gathering.

Two Pumpers Tested in New Orleans, La.—Two 900-gallon Ahrens-Fox pumpers have been tested in New Orleans, La., under the direction of Chief John Evans.

WITH THE EDITOR

One Reason for Getting Rid of the Chief

Chief Walter S. Blanton, of the Macon, Ga., Fire Department, recently resigned his post—thereby, it is said, getting one jump ahead of the powers-that-be in removing him from office.

It was apparently conceded by even the opponents of the chief that he was an efficient officer. After leaving the Savannah Fire Department, he, it is acknowledged by all, raised the Macon fire-fighting forces, which were in rather bad shape, to a prime condition of efficiency.

Why then, it may be inquired, did the authorities desire the scalp of the chief? The answer is that he cursed!

Chief Blanton is reputed to be a church member, and yet, it is charged that before his men *he cursed!* And by this heinous offense, in the belief of the Macon authorities, the services of Chief Blanton has rendered to the Fire Department—the fact that he has raised it to a high state of efficiency and has placed the city in his debt thereby, is all nullified.

As to whether the chief had considerable provocation for the profane word—if he really did use it—the accusers are silent. No doubt he had!

Of course, it is very plain that the whole matter is only another manifestation of the evil effects of politics on fire departments which are not protected by ordinance from the tampering of those whose interests are set ahead of the city's and the fire department's good. Until the influence of the politician is removed entirely from the fire department such cases will constantly crop up, to the destruction of the morale and discipline of the fire-fighting forces. The absolute divorcement of the fire department from politics is the only possible remedy and the sooner cities which have not taken such action, realize this fact the better it will be for them and for the fire service in general.

A New Means for Arson Convictions

What apparently established an exceedingly important precedent is the recent conviction and imprisonment of an arson gang through the medium of misuse of the United States mails. In the present instance the United States Government took a hand in the proceedings, with the result that seven men are now behind the bars of the Federal prison at Atlanta.

The evidence showed that the guilty men, in order to cover up their pilfering of property of other patrons of the storage warehouse, had employed a firebug to burn the building and its contents, and thus wipe out all evidence of their crime. In this they would perhaps have been successful, but for the clumsiness of the arsonist. A lighted candle timed to ignite a quantity of gasoline when it had burned down to a certain point, was overturned by mistake into the inflammable fluid, and the incendiaries barely escaped with their lives.

The resulting fire turned out to be a four alarm blaze, and after its extinguishment, an empty five-gallon gasoline can was discovered by an assistant fire marshal near the supposed place of origin of the fire.

The investigation which followed brought out the entire plot, which involved the use of the United States mails in arranging its details. The correspondence and other papers of the gang formed an important part of the evidence and the matter was settled when some of the criminals confessed and revealed the details of the crime.

The cooperation of the Federal authorities in the prosecution of the criminals did much to convict them and their sentence to the United States prison followed.

This should afford a new and effective means of prosecuting this type of criminal. If it can be proved that he has made use of the United States mails to obtain money for a fire that was illegally set, his conviction on both the charge of arson and that of using the mails for criminal purposes should be the result. If the chief and the fire marshal can obtain the cooperation of the Federal officials in convicting the arsonist their tasks will be just so much easier and the punishment of the criminals just so much more certain.

The Peril of Panic

In assemblies of large numbers of individuals, such as theatres, movie houses, lecture halls, and the like, the actual danger from fire is usually far less than that of panic. The psychology of crowds shows that fear is apt to be contagious and that it often sweeps irresistibly over a large assemblage even when partly composed of individuals who in ordinary circumstances would keep themselves well under control in time of danger.

Inversely, the influence of an outstanding individual of strong personality or unusual coolness and bravery often has the effect of swaying such an assemblage and averting the ever present danger of a stampede from fear. Such an instance occurred recently in a vaudeville theatre in New York. Some one detected an odor of smoke during a performance and a popular singer was recalled to the stage to repeat a number of which the audience was particularly fond.

While this unsung hero held the attention of the

audience an alarm of fire was turned in, and then he coolly requested the people to file quietly out, as there was a blaze in the theatre, assuring them that there was no danger.

The hall was expeditiously cleared, just as the fire apparatus appeared upon the scene and the fire, which was a small one, was quickly extinguished.

Such acts show how, by a little coolness and bravery in time of peril, the dangers incident to mob action on the part of a large assembly can be controlled and averted. Emergencies of this kind often develop unexpected bravery and the genius to lead in individuals that no one—themselves included—ever suspected the possession of such latent powers of captainship.

It is probably fortunate that such is the case, as no doubt, but for these occasional flashes of genius in time of stress, panics with serious loss of lives, would be the result.

Nearly all of the great theatre disasters have been the result of just such overwhelming manifestation of mob-fear. In many instances of such holocausts the loss of life could have been entirely averted if the audiences had kept their heads and moved quietly and coolly to the exits, instead of knocking each other over in their mad scramble to escape. The result of such panicky haste in practically every instance has been to jam the escaping people in some passage or doorway, thus cutting off their own escape and those who followed them in the rear. These, in turn, frantically piling up behind the others, form such a mass of human bodies that extrication alive is impossible.

This has been the history of panics of this nature and the only way to avoid them is to educate the audiences, as far as is possible, in coolness and then pray for some calm natured individual to arise in time of need to sway the mob toward saneness and normalcy.

Portland Orchestra Honored

The musical organization of the Portland, Ore.. fire department has signed a vaudeville contract and will appear in various theatres along the Pacific coast under management of the Orpheum circuit.

The orchestra is under the leadership of Captain Alex Holden. The name of the orchestra will be retained and the personnel will remain the same. The men will appear on the stage in their fire department uniform, and it is believed that the tour will result in a great deal of valuable publicity for Portland.

Fire Bug Killed by Sheriff

Flourney Gibbs, twenty-five years of age and reputed to be a desperate character, was shot down in front of the county jail at Mt. Vernon, Ga., on November 14 by a sheriff's posse that had been scouring Montgomery county for three days trying to apprehend him and his gang.

Seven large barns containing hundreds of bushels of corn and hay in Montgomery county had been burned by Gibbs. His car was captured when he set fire to one of the barns. The car was brought to the county jail.

The next day Gibbs drove up to the jail with several young men. He was observed by Sheriff McRae and he was ordered to hold up his hands but instead of complying he reached for his gun. The sheriff drew his own revolver and fired. The shot killed Gibbs.

JOHN A. STULB.

U. S. SENTENCES EIGHT IN ARSON RING FOR WAREHOUSE FIRE PLOT

Group Found to Have Used Mails in Crime to Collect $1,125,000 Insurance Policy—Fire Bugs Barely Escape When Candle Overturns

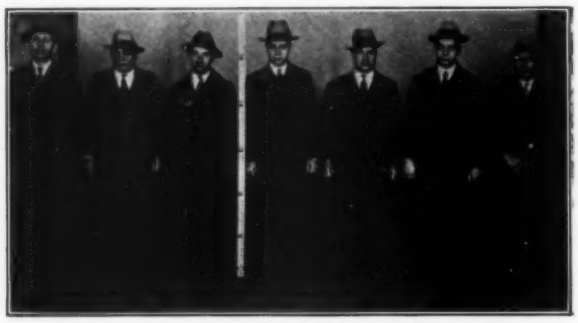
By WILLIAM JEROME DALY

USING the United States mails in an attempt to consummate an arson crime was a prime factor in placing seven men behind the bars of Federal prison at Atlanta, Ga. The men pleaded guilty to fifteen counts in an indictment charging them with conspiracy to defraud the United States Government, and this is the first time that such a move was taken by the prosecution.

On June 24, 1927, a United States bonded and free warehouse at 52 Greenwich street in New York city was set afire and before it could be extinguished it developed into a four-alarm blaze. Fire Marshal Thomas P. Brophy and members of his staff were on the scene at once and started an investigation the motive for which was increased when Martin Scott, assistant fire marshal, found an empty five-gallon gasoline can in the building not far from the point where it is believed that the fire originated.

Mr. Brophy seized the books, records and correspondence of the warehouse firm and summonded the owners and tenants to his office for examination. There was every indication that the authorities were dealing with a well organized arson ring, therefor some of the principals were trailed on the following Sunday to a sea shore resort conducted by a Greek. The principals, all Greeks, spoke their native tongue. What they talked about was later learned from the Greek waiter.

When the accumulation of evidence subsequently reached the point which indicated that a gigantic fraud had been perpetrated against the United States Government, Chief Brophy called in



Principals in New York Warehouse Arson Ring

Left to right, Charles Carmen, Charles Kwit, Simon Swiebach, George Spirou, Peter Andrews, Socrates Moschalades and John Couramalis. See story for part each one had in gigantic arson plot.

the Federal District Attorney and with the aid of detectives James McCoy and Peter Hayais (a Greek-American) of the New York Police Department, as well as Assistant Fire Marshal William R. Ferris and Special Revenue Agent James Lynch they closed in on the band and jailed them in the Tombs Prison as Federal prisoners, later indicting eleven defendants for conspiracy, larceny, fraud and misuse of the mails.

It developed that the leaders of the band held $1,125,000 insurance in various companies throughout the United States; that Socrates Moschalades, the master mind of the coterie, a wealthy importer, had bought for Peter Andrew a $5,000 interest in the warehouse which made Andrews the dummy president of the company; that they and their confederates, not only removed their own merchandise from the warehouse but stole the goods and merchandise of some of the honest tenants of the building; intending to cover the thefts with the fire; that they stored in the warehouse large quantities of rotten and worthless goods; that they "rigged" their books and accounts as well as their records of withdrawals and deliveries; that they made their merchandise appear to be of high value; that they hired professional fire bugs and that they made use of the mails to advance the arson plot and subsequent fire.

On the day set for the fire, it was arranged that two trucks would back into the loading platform to pick up 100 barrels of olives which were stored in the cellar—this in order to assign the laborers to the cellar to load the barrels into slings, while the firebugs on an upper floor were applying the torch.

But, before 100 barrels of olives could be hoisted out of the

(*Continued on page* 1225)

QUESTIONS AND ANSWERS

Conducted by FRED SHEPPERD, B. Sc., M. E.

"He that questioneth much shall learn much"—BACON

NOTE—Readers of FIRE ENGINEERING are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified.

Correction on Record Fire Run

To the Editor:

Will you kindly settle the following discussion:

In the November 16 issue of FIRE ENGINEERING, Chicago claims a world record for a fire department evolution that is described in the article as "the apparatus was out of quarters in eight seconds, had travelled 570 feet to the hydrant in fifteen seconds."

Does that mean the apparatus travelled 570 feet in seven seconds? If so, what speed would the apparatus average? What is the maximum speed of a Seagrave pumper of the type that was used?

Very truly yours,
C. W. P.

Answer: The statement "570 feet" is the result of a typographical error and it should have read 370 feet. The average speed of the apparatus was thirty-six miles an hour. This is based on the speed of 370 feet in seven seconds or nearly fifty-three feet a second.

We have no data on the maximum speed of a Seagrave pumper of the type that was used in the test. We would suggest that you write to the Seagrave Company, Columbus, Ohio, for that information. You must remember that the answer to this question depends upon the load that the pumper will have to carry and whether the speed is measured on straight level ground or up a slight or a severe incline.

Qualifications of an Officer

To the Editor:

I have been a reader of your journal for a number of years and I wish to take this opportunity of submitting three questions to you.

I have recently taken and passed an examination for captain and received a high rating for my oral examination. I have had a number of discussions as to how the questions given below ought to be answered. Therefore I would like to have you answer them as a disinterested party.

Cordially yours,
F. R. W.

The questions are:

1. What are the qualifications of an officer?
2. Why do you desire to become a captain?
3. Why would you make a good captain, or why do you think you would?

Answer 1. This question is somewhat vague as it does not clearly distinguish as to whether the qualifications referred to are legal qualifications or are the personal qualifications necessary for a man to be a *good* officer. As the question stands, one would be inclined to assume that the first condition was meant. It is believed, however, that what is really wanted is an outline of the personal qualifications of a *good* officer and these will be given.

A good officer must have first a good personality. This entails character, physique and education. A good officer must necessarily be thoroughly posted in his work so that he can command the respect of his subordinates. He must understand discipline and know how to administer it. He must be physically fit in order that he may do those tasks which he expects of his men. He must have a very clear sense of justice so that he can enforce the rules and regulations without favoritism.

A good officer has ambition to progress. An officer who is satisfied to remain where he is and makes no attempt to improve himself cannot be considered as a model officer. Not only must he be loyal to his company or department, but he must likewise be loyal to his city. He must be willing to improve the men beneath him by giving them proper instruction and encouraging them to improve themselves. He must know the responsibilities of his position and live up to them.

Answer 2. In answering this question an answer along the following lines would probably be acceptable:

"I desire to become a captain because I am deeply interested in the fire service and feel that the advancement will enable me to serve my department in a more effective manner; at the same time it will give me an opportunity to improve myself further in fire fighting and fire protection work. I am desirous of assuming the additional responsibilities of the rank of captain because I am confident that I can fit myself for this bigger task.

Answer 3. I believe I would make a good captain because I have prepared myself for this advanced position through conscientious study and careful observation of the work of the department. I fully appreciate the wisdom of discipline in the department, and feel that I can administer it in an impartial and just manner. I have both the experience and training necessary to fit me for the position of captain; the physique and desire for the responsibilities of this position.

Relay Layout

To the Editor:

In going through some books on fire department hydraulics I have encountered a problem which is a little difficult for me to understand, particularly in the form in which it is explained in one the books. The problem treats with the relaying of water from one engine to another. Here is about the problem I had in mind: An engine is placed at a hydrant, the hydrant pressure being 30 pounds. This engine is pumping through 1,000 feet of 2½-inch hose to a second engine from which the water is sent through 1,000 feet of 2½-inch hose to a 1¼-inch nozzle.

What pressure would be used at the first and what pressure at the second engine?

In other words the problem is to find out what the nozzle pressure would be at the end of the line of hose on the second engine. I seem to be unable to find out what engine pressure the first engine would have to have in order to deliver the proper amount of water to the second engine to furnish a nozzle pressure of between 40 and 50 pounds, allowing 1,000 feet of hose from each engine. Also kindly explain how the problem works out if four or five engines were used to relay the water in a long stretch.

C. W. H.

Answer: The placement of engines in the lines as given in your problem is not quite in accordance with usual practice. Assuming that both engines are the same size, the second engine, that nearer the nozzle, will have to do the most work because it will have to create a nozzle pressure in addition to overcoming friction in the line. The first thing then to do is to determine about what pressure the engine will be operated at. Assuming a friction loss of around 15 pounds per 100 feet of hose we will have for 1000 feet 150 pounds friction loss. Allow 40 or 50 pounds nozzle pressure and it will give us about 200 pounds to be employed at the second engine.

The rule for the placing of engines in a line where they are to be operated at around 200 pounds is as follows:

Where an engine is operating at a pump pressure of 200 pounds or thereabouts, the length of the line from second engine to nozzle should be ¾ the length of the line from the first to second engine.

On this basis the 2000 feet of hose will be divided into seven equal parts—assuming the distance from the first to the second engine as four quarters and from the second engine to the nozzle as three-quarters (according to the rule above).

One-seventh of 2,000 is approximately 285 feet and 3/7 will be three times this or approximately 855 feet — or 850 — which is the length of hose from second engine to nozzle.

The length of hose from first to second engine would be 4 × 285 or 1150 or 1150 feet approximately.

Starting with the second engine, the nozzle pressure would be determined as follows.

$$\text{N. P.} = \frac{\text{E. P.}}{(1.1 + \text{K} \times \text{L})}$$

$$\text{N. P.} = \frac{200}{(1.1 + 248 \times 17)}$$

$$= \frac{200}{5.3} = 38 \text{ pounds}$$

Quantity flowing is found by formula: Quantity = 30 × D × D × √N. P.

= 30 × 1¼ × 1¼ × √38.

= 290 gallons per minute.

With this flow the friction loss per 100 feet of 2½-inch hose is approximately 20 pounds.

The pressure at the first engine will then be found as follows: Friction loss in 1150 feet of 2½-inch hose = 11.5 × 20 = 235 pounds. Allow 10 pounds at the end of the line between first and second engine to discharge water into the second engine. This would give us 235 plus 10 or 245 pounds necessary at the first engine.

The hydrant, however, helps the first engine with 30 pounds pressure. Deducting this from the 245 pounds we have 215 pounds which the first engine would have to develop in order to satisfy the above conditions.

Actually, the first engine would be showing on its discharge gate a pressure of 245 pounds.

While the 38 pounds given above is slightly less than the 40 you suggest, it is sufficiently near for all practical purposes.

In solving a relay line where several engines are placed at different points in the line, it would be best in the event that five or six engines were used, to place them equally distances apart. This would not give all engines exactly the same load but would be the simplest way of handling the problem.

In such a solution we would start with the last engine first and calculate what the engine pressure would be. Then with the friction loss and the necessary discharge pressure into the first engine we would find what the pressure in the second engine would be, and so on down the line to the hydrant.

Some Promotional Questions

The following is a continuation from last issue of the collections of promotional examination questions sent in by "M. A. W." and the replies:

9. How should hose be cared for in quarters and on fire grounds?

10. What condition should be observed in regulating leave of absence so as to keep the company at all times in a thoroughly efficient state?

11. If you received orders to connect to high pressure system, what fittings are required and how would you proceed?

12. If a line of hose should burst between the 4th and 5th floor of a five story building, explain how it should be replaced.

13. At a fire, how many men are permitted at one time on the following: 15 foot ladder—20 foot ladder—30 foot ladder—35 foot ladder?

Answer 9. It is assumed that while hose is in use at a fire it is not feasible to be especially careful in avoiding its damage or injury. After the fire it is generally possible to give attention to the condition of hose, at which time a number of items should be taken into account, including scorching of cotton jackets, exposure to hot oils and greases, frozen strands, worn places due to friction on pavements, window or cornice ledges, etc. The ability of hose to sustain internal pressure without bursting is entirely dependent on the cotton jackets, the rubber lining having little value in this connection. Consequently any damage or injury to the cotton jackets has an immediate bearing on the strength of the hose. When a line of hose is subjected to heat from a fire sufficient to discolor the cotton fabric it is time to investigate closely the extent of the actual weakening of the threads, which, if found to be at all brittle, have entirely lost their strength.

When wet hose is exposed to freezing temperatures so as to stiffen the jacket from ice formation, it should be handled as little as possible until thawed out, as it may occur that the warp threads, or some of them will break when the lengths of hose are bent or folded.

Pump pulsations frequently cause chafing of jackets on pavement, curbstone edges and edges of window sills and cornices. If much vibration takes place in hose lying on sharp cinders or frozen ground, a jacket may be entirely worn through in half an hour or less. The weakening of hose from such causes, while of material importance in any case and affecting the length of service received, is very greatly diminished in its first importance if the hose be double-jacketed, since, with the usual qualities of fire department hose, the strength for resisting bursting pressure of the inner jacket alone is ordinarily sufficient for practically all service conditions. The outer jacket, while adding to the strength for resisting bursting pressures to a very material amount while the hose is new, really serves as a scuff plate, shock absorber, or similar device, protecting the inner jacket from fatal injury. This function is believed to be of sufficient importance to overshadow the additional cost and weight, the latter being approximately 25 lbs. per length, and other considerations, except for service in private departments, where infrequent use is the usual case.

Exposure to hot oils and greases or to gasoline, naphtha and other rubber solvents, even if of very short duration, is likely to result in early failure of the rubber lining, which either hardens, perhaps to brittleness, or is loosened from the jackets, swollen and deformed so as to be entirely useless for performing its function.

Other injuries which hose receives while in use at fires, in addition to the "natural injuries" from trucks, trolley cars, etc., are varied and large in number. In any event, it seems necessary to include the practice of making careful examination of hose for damage done during a fire as soon as possible after it is brought back to the house as a very important feature in the matter of the proper care of hose after purchase.

Much of the fire hose in service is in departments where, fortunately, for one reason or another, it is not called into frequent use. Such hose must have special attention over and above that given to hose which is put into service each month, week, or day. This attention is required because of the tendency of all things to return to dust. Cotton, from which the hose jackets are made, is subject to damage from mildew, the favorable conditions for which are continued dampness with poor ventilation. Cotton fabric is at its best with respect to its strength and lasting properties if stored under conditions permitting good ventilation and the humidity of a bright June day. The rubber lining in the course of its manufacture is transferred from a plastic, putty-like mass to the condition in which it is found in new hose through a chemical reaction due to sulphur in the rubber compound. The period required for the reaction to take place is shortened by exposing the compound to heat. The reaction would nevertheless have progressed to approximately the same point in due course of time without recourse to artificial heat, and likewise continues at ordinary temperatures for presumably an indefinite time.

Answer 10. The chief condition to observe in granting leave of absence is to so permit absence of members from company as not to weaken the manual force. It should be remembered that the unusual happens just when the company is least prepared, and weakening the force by granting leave of absence when other men are away from station, so as to reduce the company to a weakened condition, only results in one thing,—lack of manual strength when company is called to a fire.

Answer 11. The answer of this question depends upon the type of hydrants you use and the high pressure system employed in your city. It cannot be answered unless full data is furnished regarding pressures, type of hydrants, etc.

Answer 12. To remove a burst length of hose from line between fourth floor and roof, the first thing to do is to order the water shut off. Disconnect the line on the street, at the next coupling to the building, and put in a good length of hose. Remove the roof rope from the hose and from around the chimney, and hoist the line to roof. Take out the burst length on the roof, recouple up again and let the hose come back over hose roller and make it fast again with roof rope, as it was before.

Answer 13. The New York fire department rules which are those observed widely throughout the country permit one man on ladders from 10 to 15 feet in length, two men on ladders 20, 25 and 30 feet in length and three men on ladders of 30 or over in length.

On a 15 foot ladder therefore, one man would be permitted; on a 20 foot ladder two men; 30 foot ladder two men; while on a 35 foot ladder three men would be permitted.

(To be continued)

Krause With Automatic Door Company

M. E. Krause of Chicago, who has been representative for fire apparatus concerns in that section, has been appointed special representative of the Automatic Power Door Manufacturing Company.

This firm is marketing a door operator for fire stations, electrically operated, which closes automatically after the apparatus has left the fire station. The doors are made in three standard sizes accommodating all usual type doors.

The operating mechanism consists of two rotating arms driven from a single shaft through enclosed worm gears running in oil. The power is furnished by a heavy duty reversible motor, ensuring positive operation at all times. The arms are connected to the doors through a toggle linkage which causes the doors to start slowly, speeding up under motion, and slowing down to stop. There are no chains, cables, pistons or valves to become troublesome.

Mr. Krause has made a host of friends among the fire department officials in that territory, and they will be mighty pleased to learn that he is back again in the fire department sales field. He has spent a large portion of his time in work destined to improving fire-fighting conditions.

Mr. Krause may be reached at the office of the Automatic Power Door Manufacturing Company, 3440 North Kimball Avenue, Chicago, Ill.

ROOF WATER TANK DROPS AT FIRE CAUSING DEATH OF TWO FIREMEN

Pittsburgh Has Big Business Building Blaze—Three Structures Destroyed With Loss in Excess of $1,000,000

FOLLOWING Fire Prevention Week after an extensive campaign on fire prevention in all the public and parochial schools in the city by the chief, deputy and battalion chiefs and uniformed firemen, building inspections by firemen and talks before various civic bodies and other organizations and over the radio on fire prevention by Chief Richard Lee Smith, one of the largest, most destructive and spectacular night fires that has visited the City of Pittsburgh in years took place on Sunday night, October 16, in the furniture and drygoods section of the downtown business district.

The fire started from some unknown cause in the six story brick building at 931 Penn Avenue occupied by William Pearlman & Sons, milliners, and the Broadway Cloak and Suit Company and extended to the six story brick building on the west at 929 Penn Avenue occupied by Ludwig Hommel & Co., radio dealers. The fire completely destroyed the interior and contents of these two structures and then spread to an eight story brick structure on the east at 933-943 Penn Avenue, occupied by the Pittsburgh Drygoods Company, one of the largest wholesale mercantile structures in the city, the flames sweeping through the top floor and part of the seventh floor of this building, causing a loss of over $1,000,000, the death of two firemen and injury to a number of others.

The fire threatened for a time to sweep through the entire block of six, seven and eight story structures, bounded by Penn Avenue, French Street, Garrison Ally and Tenth Street. It was finally brought under control after a hard three hour fight by the combined efforts of thirty-three fire companies called to the fire on four alarms from the street box and three special telephone calls.

The fire was first discovered by a passerby who turned in the first alarm from Station 33, just a few steps from the burning building and reached the Department at 10:28 p. m.

Upon arrival of the first alarm companies the fire was discovered raging on the fifth floor of the building at 931 Penn Avenue, where it evidently started, and was making rapid headway to the upper floors of the structure. Seeing that a serious looking fire was in progress and that more help would be needed, Chief Graves sent in the second alarm at 10:41 p. m. calling to the scene, Engine Companies No. 19, 2, 30, 46 and 42 and Truck Company No. 46 in command of Battalion Chief, Saul Klein of the Fifth Battalion and Chief of Department Richard Lee Smith, who upon his arrival took full command of the fire fighting.

The second alarm was followed by the third at 11:03 p. m. In spite of the combined efforts of the eighteen engine companies, three truck companies, the emergency squad company and water tower company fighting the fire from front and rear and all other points of advantage with a large number of powerful high pressure streams, the fire continued to spread and gain headway.

Three special telephone calls were sent out through the Fire Alarm Office at 12:05, 12:23 and 12:49 p. m. by orders of Chief Smith to the nearest available engine companies to respond to Station 33. This made a grand total of twenty-eight engine companies, three truck companies, the Emergency Squad Company and the Water Tower Company battling with the flames.

The immense water tank on the roof of the Pittsburgh Drygoods Company's building, used to supply the sprinkler system, collapsed as the structural steel supports were weakened by the intense heat of the flames beneath and toppled over, crashing through the roof, down to the second floor of the building and pushed out a large section of the west side wall. This showered tons of hot brick and wreckage down on a number of firemen who were directing streams into the rear of the burning structures from a fire escape of a five story brick building on the opposite side of a blind ally running off Garrison Ally between Penn Avenue and French Street to the Pittsburgh Drygoods building, where it stopped. Two firemen lost their lives, a number of others being badly injured and others had a narrow escape from death in the crash.

Following the fatal crash of the water tank and wall, rescue squads of firemen rushed in and pulled their fellow firemen from beneath the mass of bricks and wreckage after which they were taken to the Mercy and Allegheny General Hospital, under the direction of Police and Fire Surgeon Daniel E. Sable. Two of the firemen, both members of Engine Company No. 5, Captain William H. Coslett and Hoseman Harry O'Toole suffered injuries which resulted in death for both within forty-eight hours after their admittance to the hospital.

A number of other firemen, including Deputy Chief Frank C. Loxterman, were overcome with smoke or more or less injured by falling bricks and flying glass during the progress of the fire.

Forty-six gasoline pumper streams, three steam fire engines streams and one plug or hydrant stream were used in controlling and extinguishing the fire, which included the powerful high pressure streams from the new deluge combination water tower and turrett wagon, the sixty-five foot water tower and three and four way siamese deluge sets from the upper floors and roofs of buildings across Penn Avenue, which were supplied through 1,650 feet of three-inch hose and 23,950 feet of 2½ inch hose.

Plenty of Ludlow single and double 4½ inch opening fire hydrants, two, three and four at street intersections and two in the middle of the blocks connected to large volume water mains with pressures of 85 to 100 pounds on the hydrants gave the firemen plenty of water with which to combat the flames.

One of the two new deluge combination water tower and turret wagons, No. 1 of the downtown district, was connected up on Penn Avenue in front of the two burning six story buildings with nine lines of two and three inch hose, pressure being supplied by three 1000 gallon triple combination gasoline pumpers.

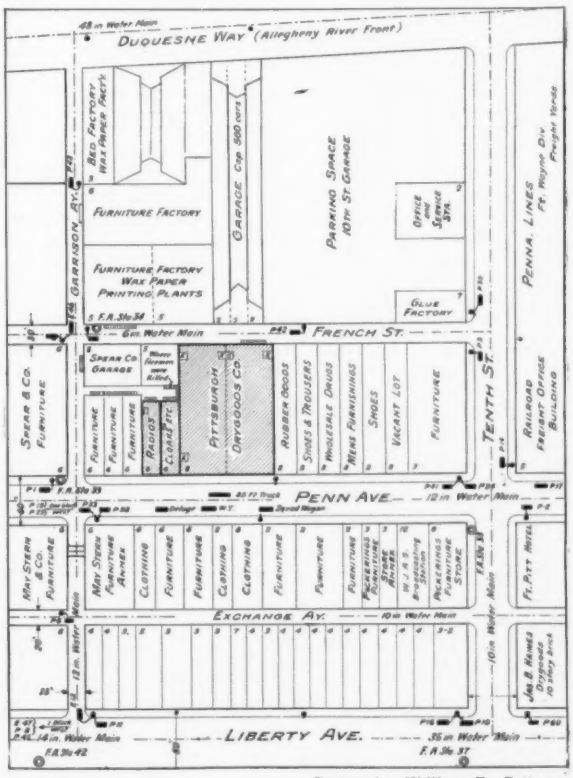
Emergency Squad Company No. 1, which has proved such a valuable addition to the Fire Department in the short period of time it has been in service, did most efficient salvage work in covering up merchandise and office equipment and records on the lower floors of the burning buildings, using in all 180 covers, the squad wagon making extra trips back to their quarters for extra covers.

Over thirty covers were lost and destroyed when the three top floors of the two six story buildings fell.

Forty pieces of fire apparatus all motor driven and tractor drawn, were in service at the fire.

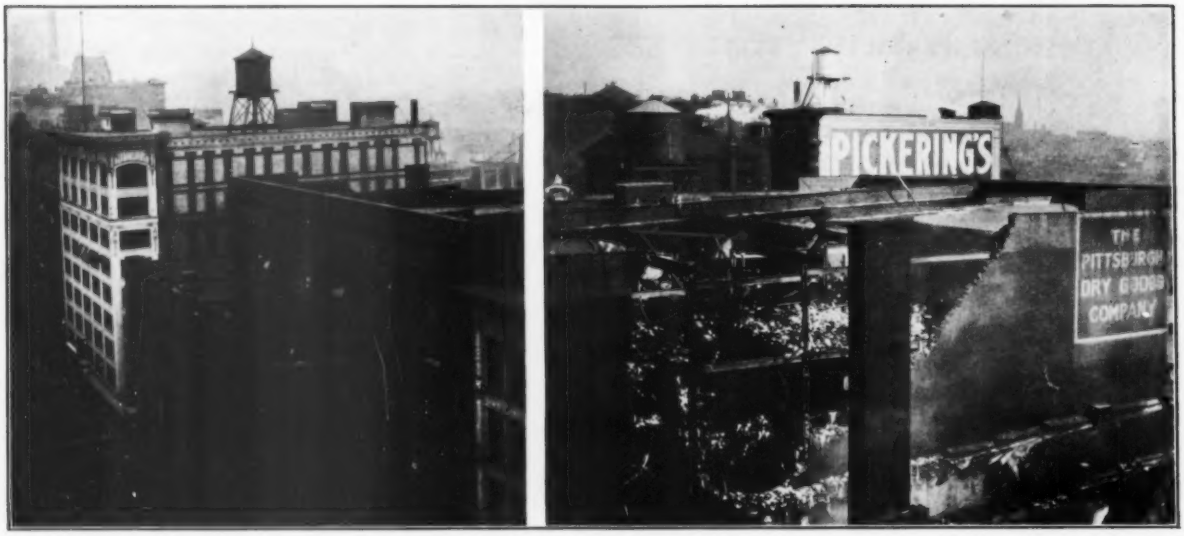
A total of 284 uniformed firemen were on duty at the fire made up of the night and day shifts. A number of firemen on the off turn including Battalion Chief Sparr, one of the battalion chiefs of the downtown business district, hearing of the fire, came to the scene and went to work.

The two six story buildings at 929 and 931 Penn Avenue were of brick and wooden joisted construction, built over thirty years ago, fronting fifty feet on Penn Avenue and extending part way through the block to a narrow dead end ally a distance of eighty feet, with a fire escape on the rear of both buildings.



Drawn by William E. Patterson

Diagram of the Pittsburgh Warehouse Fire



Left, View Showing 6-Story Building of Pittsburgh Dry Goods Company, where Fire Started, with Ten Story Furniture Building of Spear & Co. in Background. Right, View of Ruins, Taken from the Roof of the Spear Building, Showing Damage Done by Fall of Water Tank on Roof of Pittsburgh Dry Goods Building. Ruins of Two Six-Story Buildings in Right Foreground

The building occupied by the Pittsburgh Drygoods Company was an eight story brick structure with steel frame and wooden floors supported on iron beams and columns, fronting on Penn Avenue one hundred and twenty-five feet and extending through the block to French Street a distance of one hundred and fifty feet. The building was divided into two sections of equal width by a brick wall with openings on all floors, and was equipped with a modern automatic sprinkler system, which for some reason unknown did not function when the fire extended to this structure. A single tier of windows which faced in the blind ally were all protected with fire shutters which were closed when the fire broke out in the adjoining structures, the fire from all indications extending to the drygoods structure from the intense heat generated by the flames rolling out of the roof and windows of the adjoining structures beating up against the fire shutters and the west wall which was of light construction at the top floors, penetrating through this wall and the fire shutters, cracking the windows and igniting shelving built against the wall packed with inflamable merchandise, the western section of the eighth or top floor soon becoming a roaring furnace. Absence of ventilators on the roof prevented the firemen from ventilating the building.

The duration of the fire was nineteen hours and fifteen minutes. After being struck out by the Battalion Chief, a detail of firemen with plug or hydrant streams were kept on duty for a number of days at the ruins. The Squad Company also had quite a number of salvage covers in use in the drygoods building for a number of days following the fire.

WILLIAM E. PATTERSON.

Three Special Calls in Big Schenectady Fire

Damage estimated at $500,000, was caused by fire in the building occupied by the W. T. Grant Co., in Schenectady, N. Y., on November 12. The building, with a frontage of 75 feet and a depth of 245 feet, is located on State Street, in the heart of the business district. The Wallace Company, a large department store, adjoins the burned structure on the west and the Metropolitan 25 to 50 cent store flanks the building on the east, the latter being housed in a large, four-story structure, of old-type construction, presenting a hundred per cent risk.

The fire was discovered by a patrolman, who pulled box 55 at 1:58 a. m. Engine Co. Nos. 2 and 3, Truck Co. Nos. 1 and 2, Hose Co. No. 1 and Squad Co. No. 1, under the direction of Deputy Chief Ira Brownell, responded. Upon the arrival of the first company, the flames, having apparently started in the cellar, near the center of the building, had eaten up through the first floor and were bursting through the roof. Six water lines were immediately laid by the companies, three being taken in the front entrance and three were stretched to the rear, through an alley at the back end of the building. Although the men worked desperately, the fire, fed by a large stock of paints, oils, blankets, cotton goods, and many articles for the Christmas season, spread to the front and rear of the store. Sensing the danger of the fire burning through to the buildings on either side of the Grant Company, the Deputy Chief sent in a special call for Hose Co. No. 6 at 2:14 a. m. This company laid in one water line to the rear of the building. At 2:42 a. m., another special call was sent in for Engine Co. No. 5, and this company also went to work at the rear of the building. Engine Co. No. 9 responded to a third special call at 3:10 a. m., and with this apparatus on hand, the fire was held in check and finally subdued in the building where it started.

Throughout the fire, the smoke was very dense and heavy, due to the nature of the burning materials, necessitating the men working in relays at the front entrance and on the roof. In all, 12 water lines were laid, 5,500 feet of hose being used. The following apparatus was in service at the fire: four American-LaFrance pumpers, one American-LaFrance hose wagon, one Mack hose wagon, two American-LaFrance aerial trucks and one American-LaFrance squad car. The "out" signal was sounded at 3:10 p. m., but a detail with two water lines was on duty at the fire until 11:30 a. m., November 13. Coffee and sandwiches were served to the firemen during the fire by neighboring restaurants and business places.

RALPH H. JECKLIN.

WHAT'S BURNING

THE following list includes fires of $25,000 loss and over in the United States and Canada, for the periods designated in the headings. These figures, compiled from telegraphic reports, are based on estimates made at the time, and are subject to later investigation and consequent revision. Taken as a whole, however, they give an approximately correct view of the losses incurred. The figures represent loss in thousands.

SIOUX CITY, IA.—Bldg. of Pill Bros. Paper Co.	30
LIMESTONE, ME.—Farm bldgs. of Howard Nichols destroyed.	30
EASTHAMPTON, N. Y.—Dwelling of C. L. Wainwright	60
CHARLESTOWN, W. VA.—Business establishments damaged	40
INDIANAPOLIS, IND.—Barn of Artificial Ice Co.	65
CHICAGO, ILL.—Warehouse of Sears, Roebuck & Co. damaged.	65
DECATUR, MICH.—Warehouse, Decatur Cold Storage Co.	30
PALO ALTO, CALIF.—Business block damaged	40
NEW YORK, N. Y.—626 Tenth Ave., occupied by Ed. Altman.	25
FAR ROCKAWAY, N. Y.—Stores at 2101–3 Mott Ave.	25
WILBURTON, OKLA.—First State Bank and adj. prop.	70
GARDEN CITY, MO.—Business bldgs. damaged	100
GOSHEN, IND.—Plant of Bartlett Electric Products Co.	30
SCHENECTADY, N. Y.—W. T. Grant Co. store damage.	200
MEDFORD, MASS.—West Medford Congregational Church	30
ALEXANDRIA, LA.—Planing Mill Hunter Rockwell Lumber Co.	25
YONKERS, N. Y.—Stables of Empire City Race Track.	40
BRIGHTON, MASS.—Coal pocket in Beacon Yard of B. & A. R. R.	80
MONTEZUMA, N. Y.—Business buildings damaged.	25
BALDWIN CITY, KAS.—Farmers' Union elevator damaged.	25
MILWAUKEE, WISC.—Yard and sheds of J. Schroeder Lumber Co.	80

EVERGREEN, ALA.—Nixon Merchantile Co. store & adj. property 125
GREENVILLE, MISS.—Wilzin Bldg. Washington Ave. damaged. 80
PERTH AMBOY, N. J.—Varnish plant of Bakelite Corp..... 80
MINNEAPOLIS, MINN.—Radio Station WAMD destroyed.... 30
PITTSBURGH, PA.—Plant of Beaver Falls Art Tile Co..... 80
MILLEDGEVILLE, GA.—Bldg. of Stevens Pottery Co. destroyed. 25
CINCINNATI, OHIO.—Bldg. of Progress Lithograph Co..... 40
TYLER, TEX.—Packing plant of J. E. Decker & Sons..... 25
CALGARY, ALTA.—Parrish & Heimbecker Grain Elevator.... 35
TORONTO, ONT.—Erskine United Church damaged..... 80
GRAND RAPIDS, MICH.—Mt. Mercy Academy damaged..... 65
NEW YORK, N. Y.—J. A. Mellish Warehouse, 58th Street.... 600
ATLANTIC CITY, N. J.—Columbia Hotel destroyed..... 80
ZANESVILLE, O.—Plant of Zanesville Gravel Co., Dresden.... 80

Week Ending November 25

BALTIMORE, MD.—Bldg. owned by S. & M. Straus, N. Howard St. 50
EARLSBORO, OKLA.—Twin States Oil Co. well damaged.... 100
LAFAYETTE, IND.—Coal chutes of Monon R. R. shops destroyed 25
NORTHFIELD, MINN.—Crarry Book Store & Hammer Drug Store 30
DENVER, COLO.—Plant of Deline Paper Box Mfg. Co..... 40
GORE, OKLA.—Evans Meat Market and adjacent property.... 30
ROCKY MOUNT, N. C.—Planing plant of Atlantic Coast Lines 30
WAYNE, MICH.—Plant of L. H. Gilmer Co. destroyed..... 80
REYNOLDSVILLE, W. VA.—Bldg. of Laughlin Coal Co..... 25
WRIGHTSVILLE BEACH, N. C.—Several cottages destroyed.. 30
MATTON, ILL.—Plant of National Broom Co destroyed..... 25
TRENTON, N. J.—Building at 1416 Washington St..... 80
BYERS, TEX.—General Store of W. C. Murray damaged..... 25
NORTHAMPTON, N. H.—Business establishments damaged... 160
SUFFERN, N. Y.—Ramapo Valley Club destroyed..... 80
JACKSON, TENN.—Business building damaged..... 80
WICHITA FALLS, TEX.—J. C. Penny store and cafe..... 125
ABILENE, KAN.—Midwest Milling Co. destroyed..... 125
WILMINGTON, OHIO—Plant of Wilmington Ice Co. destroyed 45
CHICAGO, ILL.—Garage of Western Plumbing Supply Co... 65
CHICAGO, ILL.—Library, Bessemer Park Field House..... 40
WAYNE, MICH.—Plant of L. H. Gilmer Co..... 80
GREER, S. C.—McLellan five and ten cent store..... 40
MILTON, VA.—Five buildings destroyed or damaged..... 40
WINNSBORO, LA.—Several business houses, Main Street..... 45
SCHUYLER LAKE, N. Y.—Three stores and Masonic Temple.. 30

Relation of Hydraulics to Fire-Fighting

(*Continued from page* 1210)

sure at the nozzle, which makes itself apparent by the fact that the stream is thrown farther. The smaller tip is not to be recommended for use at large fires, for costly experience has shown that at serious fires a small stream is evaporated as it falls in spray through the flames, while if a large stream is thrown, enough may escape evaporation to pass through the heated gases, and reach the burning coals themselves.

Should be Prepared for All Eventualities

Some one has truthfully said that every fire is a potential conflagration; hence, no matter how insignificant a fire may appear to be, the first effort should be made to isolate it. In other words, such means should be taken as will extinguish, without excessive water damage, the small blaze, and by the use of sufficiently large quantities of water prevent the serious fire from spreading. However, no hard or fast rules for the combating of fire can be laid down; no two fires ever present exactly the same condition or require the same method of handling. But it goes without saying that every department should be prepared for eventualities. In answering an alarm where the fire cannot be seen from the outside; firemen should enter the building with first aid appliances, never empty handed; and they should always be backed up with the "heavy artillery."

One department which takes this rule literally requires that all fires in hazardous localities the heavy stream appliances shall be made ready immediately. At a church fire this department had three deluge sets and two turret pipes at work within thirty minutes. Experience has taught this department that this is the only safe course to follow and has enabled men to confine to their places or origin some serious fires in furniture factories, wood working establishments and harness factories so that the loss per fire and loss per capita in that city is only moderate.

Taking Care of the Small Fire

For the extinguishment of the small fire the appliances usually depended upon are hand extinguishers, hand pumps, hose lines from large chemical tanks, small water lines from booster pumps, small hose on large hose and small tips on shut-off nozzles of large hose. With any of these appliances the amount of liquid used is easily controlled, and in the hands of the trained operator the stream is placed where it will be the most effective. The quantity of liquid is so small that whatever is spilled can easily be taken up by sponges or mops or swept out before it has seeped through the floor and caused damage below.

The soda and acid type of chemical is familiar to all of you chiefs, so I will not dwell upon it here. The common one and a half quart type of carbon tetra chloride extinguishers are of special value in incipient fires in oils and greases and for electric arcs. One objection to this type of extinguisher is the small amount of liquid it contains, and also it must be used with caution in closed rooms owing to the stupefying effect of its vapors.

Use of Small Hose and Chemical Tanks

In recent years some of the builders of fire apparatus have placed water tanks instead of chemical tanks on their pumping engines and use the tank as a suction for the tank. A small line supplied in this way can be placed in operation as quickly as a chemical line, and it has the advantage of maintaining uniform pressure. The supply is continued indefinitely by connecting the large hose to the suction of the pump.

In a few cities much use is made of one or two lines of ¾ to 1½-inch hose, used as an extension to the usual 2½-inch line; these should be and usually are connected to the shut-off nozzle of the larger line as this permits better control and allows the more powerful stream from the 2½-inch line to be put into service quickly if it becomes necessary. A small line less than fifty feet long is hardly practicable, since it does not leave sufficient room for easy movement. The use of the water line introduces an element of delay as compared to the use of chemical lines for it takes some time to connect and carry in the large hose; but the supply in uniform and at constant pressure and can be continued for an indefinite period.

A stream from a chemical tank offers a quick means of checking the spread of a fire while the large appliances are being made ready and as it frequently happens, the chemicals may be augmented by connecting the large hose to the tank, and using water through the chemical hose. The range of use of a chemical stream is limited to the length of the hose; that is, from one hundred to three hundred feet.

Use of the Shut-Off Nozzle

Mention has been made of the desirability of following up the small appliances win the large hose. For inside work a shut-off nozzle should always be used because it gives absolute control of the stream. The shut-off nozzle is merely an adaptation of the straight-way stop-cock and offers no obstruction to the stream. The nozzles are fitted with tips of various sizes ranging from five-eighths to one and one-fourth inches, which can be quickly changed. Many firemen carry extra tips in their pockets, adjusting the small ones for dwellings, and stores where only a small amount of water is desired, or when direct hydrant streams are used, and the water pressure is low.

When using a shut-off nozzle, if a large stream is needed quickly, the tip may be removed entirely and a full one and one-fourth inch opening provided. The one and one-eighth inch tip is most frequently used for inside work and one and one-eighth and one and one-fourth inch for single lines on ladders and roofs. Many of the shut-off nozzles have a hook at the base for convenience when working from a ladder. There are many freak forms of shut-off nozzles, but most of them are more of a passing fad than of any real use. One called a "bed-room" nozzle has a small tip on one side, another has a cone adjustment for regulating the size of the stream, and a

Fire Prevention Float Used in Pocatello, Idaho

A very effective float was used during Fire Prevention in Pocatello, Idaho to bring the lesson of fire prevention closer to the individual home. Reading from left to right, the men on the truck are Ernest Ellis, inspector; William Schaffer, captain, in charge of fire prevention bureau; A. L. Brown, inspector; A. M. Elliott, Inspector and Bazil Jones, master mechanic and builder of the float illustrated.

third has a spray to protect the hose man from heat. The latter is not recommended since it is apt to be abused and cause excessive water damage.

Larger Nozzles When the Fire Increases

As a fire increases in size and the men are driven from the building, it becomes necessary to use larger quantities of water to cool the burning mass and stop combustion. First come the larger tips on the shut-off nozzles, one and three-eighths and one and one-half inch nozzles, or single lines. These are the first on the ground and the quickest to be placed in operation. Judgment, however, should be exercised in the selection of the larger nozzles for the shorter lines and the smaller for the longer lines. The single lines are used to best advantage from fire escapes, adjacent windows, and in narrow alleys to prevent exposure but entire reliance should not be placed upon them.

In cities which make general use of powerful streams; that is of streams larger than one and one-half inches, the turret pipe, which takes tips up to two inches in the first to be placed in operation. These are customarily supplied through from two to four lines of hose and after being connected can be operated by one man. The nozzle will swing easily through any plane and can be used for playing into a mass of fire or to establish a water curtain between two buildings. One department has a pipe on a service truck on the theory that when the ladders are removed, the vehicle alone is of no use; fitted with a turret pipe, however, it is of distinct service. Another has installed a pipe on a touring car.

Some departments object to the use of turret pipes, believing that it is unnecessarily exposing a piece of apparatus to damage by falling walls. If a close watch is kept on the walls the apparatus can usually be removed in time, even though to expedite withdrawal it becomes necessary to cut the hose. What is the loss of one piece of apparatus compared to the possibility of preventing a conflagration.

There are some places where a heavy stream is needed in which it is inconvenient or undesirable to place a turret pipe. Partly to meet this need the deluge set has been developed. This consists of the nozzle, about fifteen feet of three or three and one-half inch lead hose, a two, three or four-way siamese, a nozzle holder, a tripod to support the nozzle, and a platform with heavy spikes to prevent slipping; the platform serves as a base for the holder; nozzles used vary from one and three-eighths to two and a quarter inches. The deluge set, once it is brought into action requires little attention. It cannot, however, be readily moved without shutting down. The deluge set finds its chief application in fires where it is desirable to leave a heavy stream working on a burning mass for a considerable length of time, in narrow alleys or courts, from roofs of buildings and for inside work. When, as is often the case, it is desired to work a heavy stream downward from a building, the deluge set may be made to serve handily by removing the tripod and platform and hooking the holder over the edge of the roof or window sill.

Use of Hydrant Streams

In many cities direct hydrant streams are widely employed and if water pressures are sufficiently high considerable saving in time results. One man can connect the hose to the hydrant and have the latter open by the time the nozzle is ready; while to place an engine in operation necessitates the making of at least three couplings, requires the services of two or three men, and, if the engine is a steamer, probably there will be a delay in waiting for pressure. The elimination of engines by the use of direct hydrant streams does away with much confusion, reduces the amount of apparatus and gives more uniform pressure. However, departments are subjected often to severe criticism for using hydrant streams where pressures are too low and in any city having a number of four-story or higher buildings, there will be need of some engines for the more powerful streams. When a hose line is connected to a hydrant, two hose gates should be used, one on the line and the other on the opposite outlet, so that a second line can be connected without shutting down the hydrant.

Firemen Should Know Capacity of Various Hydrants

It is very necessary for the firemen to thoroughly inform themselves as to what may be expected from hydrants in different parts of town and under various conditions, with the best water plants, as well as the poorest. This will render them less likely to put too many streams on a fire; a mistake that is common enough and which always proves disastrous. The hydrants within reach of every block will supply just so much water without weakening the pressure and no more. Four streams of water with eighty pounds maintained at the hydrants, are likely to mean success in a big fire, while if six more are added and the pressure drops so that all ten are weak, failure is certain. In such cases the usual outcry against the water system is decidedly misdirected.

Should Post Themselves on Water Works

When the installation of water works is being discussed, the firemen should post themselves on the subject at once, and be the special advocates of the best possible fire protection. It is both their right and their duty to urge, within reasonable limitations of cost, the strongest and most reliable pressure, mains of the best material and as large as can be afforded, and first-class hydrants, and plenty of them. There are many poor hydrants on the market, which have their good points and will answer all practical purposes until an emergency arises, when they fail, and the experiment winds up with a loss that would have paid for a thousand reliable hydrants. This statement has a general applicability to the fire service. Substitute gasoline fire engines, steamers, chemical engines or almost any other hose or automobile apparatus for the word "hydrants" and it is just as correct.

Chief Blanton Resigns Office

Noting the trend of political events in Macon, Ga., Walter S. Blanton, chief of the fire department in Macon, Ga., went one step ahead of the new regime and resigned from office effective November 11.

Ex-Chief Walter S. Blanton

Chief Blanton was formerly a chief in the fire department of Savannah, Ga., and was persuaded to come to Macon to reorganize the fire department. This was two years ago when the efficiency of the force was so low that the city was heavily penalized by fire insurance rating organizations. This was when the Miller administration assumed power.

He succeeded former Chief L. M. Jones who was retired. The department has been raised to such high standards since Blanton took hold that the Southeastern Fire Underwriters Association commended him on his good work.

On November tenth, six councilmen of the Miller administration resigned and the resignations were accepted by Mayor Williams. Politicians had brought up a charge against the chief that he swore in the presence of his men. Seeing how things were developing, Chief Blanton sent the following letter to the mayor:

"Since your remarks to the council about me last night indicate strongly that you and your administration are antagonistic to me, and since I do not care to serve as Chief of the Fire Department under a hostile administration and think the service under such circumstances cannot be of any benefit to the city, I hereby tender by resignation, effective November 11 at 8 a. m."

First Assistant Chief V. C. Shepard has been appointed acting chief. Chief Shepard has been a member of the Macon department for twenty-one years.

In commenting upon the chief's resignation, the *Macon Telegraph* states:

"The *Telegraph* does not know whether Blanton cursed or not. If he did, he had sufficient provocation to make anybody curse. It would be only an archangel who could survey the Macon fire department as it stood when the Miller administration took office and confine himself to 'Tut! Tut!' Perhaps the successor to Blanton will also curse."

Chief Blanton is uncertain of his plans for the future.

JOHN A. STULB.

Home for Chicago Patrol Nearly Finished—Chief Frank McAuliffe of the Chicago Fire Patrol is planning to move Patrols 1 and 2 into the new headquarters building, now under construction, by December 1. A housewarming will be held on January 19. The new station is under construction at Monroe and Des Plaines avenues.

OF INTEREST TO VOLUNTEER FIRE DEPARTMENTS

CHIEFS SHOULD MAKE MOMENTS COUNT IN FIGHTING ALL FIRES

If Fire Can Be Fought While It Is Still Small, Much Damage Will Be Avoided—Running Card Should Eliminate Time to Get Apparatus

CHIEFS are placed in charge of the important task of keeping down the fire losses. As a means of keeping down the losses in a building on fire, it is necessary for the department to reach the fire with the necessary equipment in the shortest possible time so that the fire might be fought while it is still in its incipient stages.

It is not necessary to race the apparatus at fifty miles an hour or better in order to get to the fire quickly. When one stops to compute the time that could be gained by this method, it will be found that the small saving in time will hardly pay for the additional hazard to the firemen who are on the fire apparatus.

But many valuable minutes can be saved by the elimination of lost motion and by training the men so that each one will know specifically what to do. The latter thought was covered in an earlier issue in this department.

However, a condition in a New England department shows that there are still some organizations that can afford to place more emphasis on the elimination of lost motion. This volunteer fire department has one pumping engine and three chemical trucks. The men are paid for whatever hours they spend in fighting fires and for attendance at drills. That is a very good arrangement for there is some compensation for the men's time.

But because of a pet idea of the chief, the pumping engine is not sent on first alarm response—it is used as a secondary line of defense with one of the chemical cars serving as a first alarm assignment.

Perhaps it might be well to amplify on how the plan has worked out. Quite some time ago fire was discovered in an empty house. The one who discovered the blaze called up central and told her of the fire. The operator had no authority to send the pumper without the approval of the chief and when she told the chief of the fire he told her not to send out the pump until she had heard from him. He then started out in his chemical car—a run of two miles. When he arrived he saw that the fire was beyond the efforts of the chemical apparatus and he sent in a call for the pumper. The result is very evident. The house was destroyed and the adjoining property was placed in jeopardy. And this was because of the lost motion in the department.

When a department is called out there is nothing to indicate just how large a fire it is. It might be a false alarm, it might be a small chimney fire or it might be a blaze of major proportions. It is always well to leave the house with the thought that the company is answering an important call and the assignment should be made accordingly.

There should be sufficient equipment and apparatus at the scene of the fire to stretch in a chemical line, a small size hose stream or a 2½-inch line depending on conditions. But when the chief sizes up the situation and decides on a plan for fighting the fire, there should be sufficient equipment to carry his plan out. It should not be necessary to put in a call for such an important piece of apparatus as the pumper.

If in the mind of the chief, the fire is of small consequence and all the companies that have responded are not needed, he should order some of the companies to return to quarters. In that way, the village is not left entirely without fire protection.

In the large fire departments the water line is immediately connected regardless of whether the fire requires it. However, the water is not turned on until needed. The chemical line is used first, except in fires of such proportions that makes it mandatory to use large hose streams. Should the fire get away from the chemical line, the hose line is ready for immediate use.

How much better would it have been for the chief in the department described to have had both the chemical line and the pumper. Then if he saw that the fire was breaking away from the chemical stream, the hose line from the pumper was ready to be used. It would have not been necessary to wait until men were called to man the pumper and for the pumper to make a two mile run. All lost motion would have been eliminated.

It is always best to have things planned so that should certain things happen, the necessary equipment will be at hand ready for use.

For the chief to increase the efficiency of his department, it is necessary to make every moment count.

Still Continues to Fight Fires

A novel situation has developed in Glen Cove, Long Island, a popular summer millionaire's colony near New York city.

Rev. John W. Gammack, an ordained Episcopalian minister, got tired of fighting "fire" by way of the pupit. He believed that while it was all right to save the populace from the fires of the after life, the fire problem in the present existance was of far greater importance and was also far more exciting.

Rev. John W. Gammack

He had resigned from the ministry and worked his way into local politics. At the last election he was elected Commissioner of Public Safety and now has direct charge of the fire department of the city. He defeated the present incumbent who sought re-election.

Evidently the section has a different brand of ministers, for Sea Cliff, a neighboring village, is the home of Rev. Joseph A. Alten, well known to the volunteer firemen of New York state and now vice-president of the New York State Volunteer Firemen's Association.

One-Third of Fires on Farms

About one-third of the fires in this country occur on farms, and one-third of the lives lost by fire are those of people living in the farming sections.

This information was revealed by statistics gathered by the National Fire Waste Council working in connection with United States Chamber of Commerce.

The report showed that in twelve selected states during April, May and June of the present year, 177 deaths were caused by fire. Of this number, 127 fatalities occurred in the towns, while 50 were reported as having taken place in the farming districts. The death rate showed a decline of about 25 per cent as compared with the same period in 1926. It was also shown in the report that almost twice as many deaths are caused by fire in the winter months as compared with the summer period.

In addition to the enormous loss of life by fire on the farms, the attention of the Council was directed to the fact that more than $150,000,000 worth of farm property is destroyed each year by fire.

During the coming year, the Council plans to direct a major part of its activities toward trying to reduce fire losses in the rural districts as well as in the municipalities. An Agricultural Committee has been appointed to study the question and work out a program of fire prevention for the farming communities. One of the first steps which will be taken by the Committee will be an endeavor to enlist the farm press in the fire prevention movement.

Greensboro, Pa., to Organize Band—A fire department band is to be organized from the membership of the Greensboro, Pa., Fire Department.

Bethlehem, Pa., to Improve Fire Alarm—Plans are being made to extend and improve the fire alarm system of Bethlehem, Pa.

Ambridge, Pa., to Place Red Lenses on Apparatus—A red lens will be placed on the left headlights of all fire apparatus in Ambridge, Pa., as a warning to motorists.

Ed. Yates New Chief of Quincy, Ill.

Chief Ed. Yates, whose portrait is published herewith, succeeded Chief G. C. Marriott as head of the Quincy, Ill., Fire Department last May.

Chief Ed. Yates, Quincy, Ill.

Chief Yates joined the Fire Department of Quincy as a private in the year 1899, and was appointed as a driver of Chemical Company No. 2 one year later in 1900. He also served later as driver of Steamer Company No. 3.

He served for ten years as assistant chief of the Quincy fire-fighting forces, and was made chief in May of this year by Mayor Charles L. Weems.

Chief Yates is looked upon as a strict disciplinarian and an able and efficient executive.

Topeka Opens New Fire Station

Chief Joseph Waidelich, city officials and many residents were at the opening of the new No. 4 fire station in Topeka, Kans. The building was thrown open to the public and the visitors were taken through the various parts of the building. Refreshments were served and an orchestra furnished music.

The exterior of the station is of brown and tan brick and is trimmed with white stone. The station is ninety feet long and forty-two feet in width; it is two stories high. The apparatus floor is thirty-four by eighty-two.

There is a spacious kitchen on the second floor, and a large, well ventilated dormitory for the men. A recreation room has been furnished. There is also a drying room for wet clothing when the men return from a fire.

Company No. 4 is the busiest company in Topeka and in 1926 it made 202 runs. Chief Waidelich lives in a house adjoining the new fire station.

Massachusetts Fire Chiefs Meet

Chief Selden R. Allen, of Brookline, presided at the November luncheon and meeting of the Fire Chiefs' Club of Massachusetts which were held in the Elks' Hotel, Boston, on November 16.

Representative Renton Whidden, of Brookline, and City Auditor Charles H. Thurston, of Cambridge, were guests of the club. Announcement was made of the election to membership of Chief Charles F. Leavitt, of Nahant.

Chief Frank C. Newman, of Melrose, reported for the Topic Committee, recommending that the January meeting be devoted to a discussion of the civil service rules and regulations affecting promotions in fire departments.

An invitation was received from the Hood Rubber Company, of Watertown, to hold the December meeting at the Hood plant, take luncheon there, and inspect the factory and its fire protection equipment.

Chief Daniel F. Sennott read a resolution upon the death of Ex-Chief Ernest O. Severance, of Scituate. Chief Henry J. Hyatt, of Fitchburg, read a resolution upon the death of Ex-Chief Albert A. Fowler, of Gardner.

Chief John W. O'Hearn, of Watertown, secretary of the New England Association of Fire Chiefs, reported that he had received word from Chief Carl D. Stockwell, of Burlington, Vt., that plans for holding the convention in that city next June would not be in any way affected by the recent floods.

Chief Daniel F. Sennott, of Boston, told of the first practical test of the new "smoke eater" or "smoke pump" which is part of the equipment of Engine 6, of the Boston Fire Department. The device was put in operation at a smoky cellar blaze in a stable and rendered effective service. The suction pump is operated by a water driven motor connected to a hose line. A 12-inch pipe was used leading from the cellar, but experiments will be made with a flexible suction.

Chief Edward F. Dahill, of New Bedford, described experiences with his smoke eating machine and said that it was very successful and had a capacity of 10,000 cubic feet of smoke per minute. In one instance where firemen could not enter a smoky basement, the machine cleared the air in less than two minutes. Chief Dahill also told of a new piece of apparatus that he has constructed on a White chassis and which carries two 75 gallon copper tanks, 1,200 feet of hose, a Hale pump, and foam generator with 20 feet of one inch hose.

Representative Whidden pointed out the menace of motor cars parked in alleys near apartments and other buildings and read the text of a bill to prohibit this practice which will be introduced in the coming session of the state legislature.

City Auditor Thurston gave his opinions regarding the procedure necessary to legalize the payment by municipalities of the expenses of convention attendance by the heads of departments.

At the luncheon those seated at the head table were Chief Allen, Chief William H. Hill, of Belmont; Representative Whidden, Auditor Thurston, Chief William C. Shepard, of Pittsfield, president of the New England Association of Fire Chiefs; Chief William H. Raggett, of Springfield; Chief Alfred L. Mead, of Quincy; Chief James M. Casey, of Cambridge; and Chief Sennott, of Boston.

Among those who took part in discussion on various topics were Ex-Chief Francis J. Morris, of Lawrence; Chief Warren H. Belcher, of Winthrop; Chief Ray D. Wells, of Falmouth; Chief George L. Johnson, of Waltham; Chief Sewall M. Rich, of Somerville; Chief Mead, of Quincy; and Chief Newman, of Melrose.

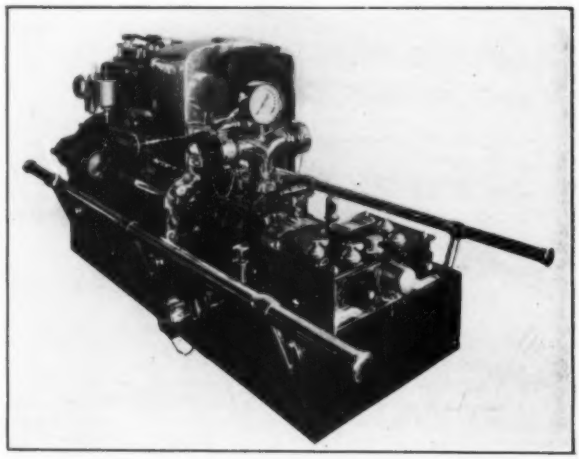
Fire Commissioner Eugene C. Hultman, of Boston; Fire Commissioner Willard W. Estabrook, of Brookline; Chief Charles H. French, of Manchester, N. H.; Chief Oliver T. Sanborn, of Portland, Me.; Chief Homer R. Marchant, of Gloucester; and Traffic Manager George F. Cobb were among those attending.

HARRY BELKNAP.

Northern Pump Used in Portugal

A northern fire pump has been connected with a French Ballot engine for use by the Bombeiros Voluntarios de Ermexinde in Portugal. The following description of the French engine may be of interest as compared to the American make motors.

The cylinders of the Ballot engine are 67 m. m. by 120 m. m., and the combined rating of the motor is 8/12 h. p. A Delco dynamo is used for starting. It is equipped with a Bosch battery of six volts and eighty amperes, Bosch electric installation, wiring, voltmeter, amperemeter, lamp switches and so forth.



Northern Pump Connected to French Ballot Engine

The motor rests on a steel base consisting of ⅜-inch plate. All metal fittings are of phosphor bronze with nickel plating. There is a silver soldered petrol tank made of ⅛-inch brass and the tank has a capacity of 2.5 gallons.

The discharge opening on the pump is 60 m. m., the suction opening 55 m. m. There are four 12 m. m. and one 20 m. m. nozzles.

Culver City, Cal., Opens New Fire Station—A combined police and fire station has been opened in Culver City, Cal. The building was erected at a cost of $25,000.

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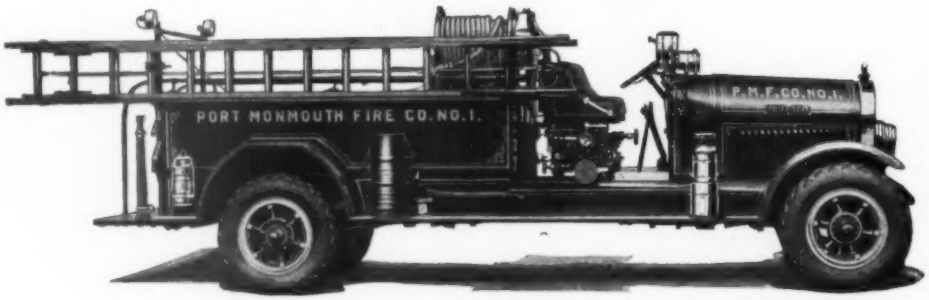

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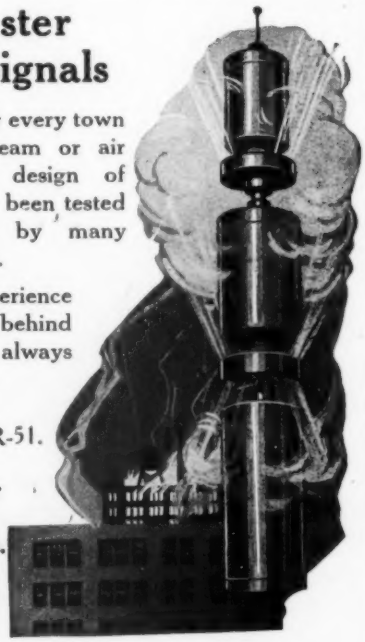

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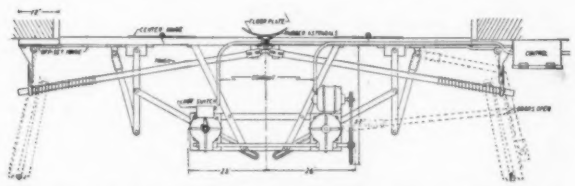
WORCESTER
ALARM SIGNALS

Device Closes Station Doors

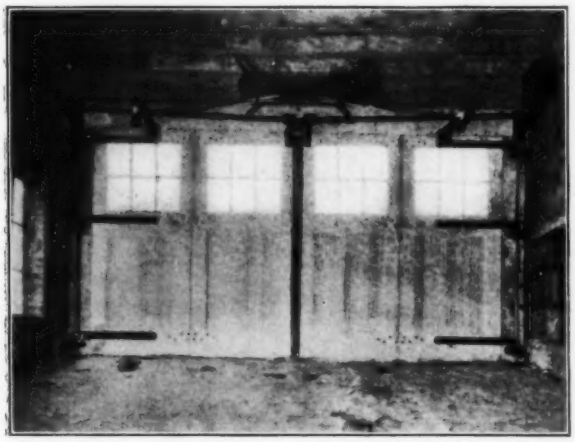
An automatic electric door opening and closing device is being manufactured by the Automatic Power Door Manufacturing Company of Chicago, Ill. The device can be installed on a two-section or a four-section dorr.

The mechanism is mounted on the ceiling over the door.



Operating Mechanism for the Door Opener and Closer

The operating mechanism is very simple of construction. It consists of two rotating arms driven from a single shaft through enclosed worm gears running in oil. The power is furnished by a heavy duty reversible motor, ensuring positive operation at all times. The arms are connected to the doors through a toggle linkage which causes the doors to start slowly, speeding



Door Operator Installed in a Fire Station

up under motion, and slowing down to stop. This action prevents undue strain on the motor, the mechanism, hardware and doors, and eliminates slamming the doors. There are no chains, cables or pistons to give one trouble.

The device automatically closes the doors after they are opened. The closing time can be varied to suit conditions.

Eight in Arson Ring Sentenced

(*Continued from page* 1214)

cellar, the lighted candle which was set to burn, toppled over in its insecure foundation and fell into the gasoline soaked merchandise around it, causing an explosion and forcing the incendiaries to flee—in fact they were slightly singed.

The one particular piece of evidence seized by the authorities and used in framing the indictment for using the mails to aid or abet the crime of arson against the U. S. Government, was a series of letters which passed between the actual firebug and one of the principals in which the code word for the warehouse was "the bride" and the code word for the proposed fire was "the wedding."

So strong was the evidence and so conclusive the proof against the band, that they pleaded "guilty" rather than go to trial and run the risk of a long term in prison. The New York Board of Fire Underwriters had retained two of the ablest lawyers in New York to protect the interests of the insurance companies. When it was learned that pleas of "guilty" were in order, there was a quick rush by attorneys to impress on Federal Judge Goddard the fact that their respective clients "were the first to save the government the expense of a trial and tell all they knew in the interests of justice."

Be it said to the credit of former Deputy Fire Commissioner Clarence Fay, that upon learning from his client (one of the underlings in the plot) the facts of the case, he took his client to the office of Federal District Attorney Charles H. Tuttle and advised a "clean breast" of the whole affair.

Although indictments against eleven defendants were handed up by the Federal Grand Jury, at this writing, only eight of the eleven have been disposed of. The pictures of seven are shown, for the reason that the eighth defendant is a youth who was employed by the master mind of the arson ring in a managerical capacity. He had no actual hand in the fire and although he pleaded guilty to having certain knowledge, he was let off with a suspended sentence. It is because of this circumstance and his age and the hope that he may live it down, that his name is withheld from publication.

The seven defendants now in prison and their sentences imposed by Judge Goddard are: Socrates Moschalades, master mind and arch conspirator of the arson ring, eight years and fined $7,500; George Spirou, chief lieutenant of Moschalades, six years; Charles Kwit, professional procurer of firebugs, six years; Charles Carmen, the actual torch, five years; Simon Zweibach, an incendiary got only two years in consideration for "handing up" Kwit the procurer; John Couramalis and Peter Andrews each got one year and one day because they gave the government important information.

Thus, eight of the eleven defendants are disposed of. The truckman who was sent to the warehouse to get the olives and a furrier alleged to have had his hand in some of the minor details of the plot are awaiting trial. The eleventh man has not been apprehended as yet. He is in Greece.

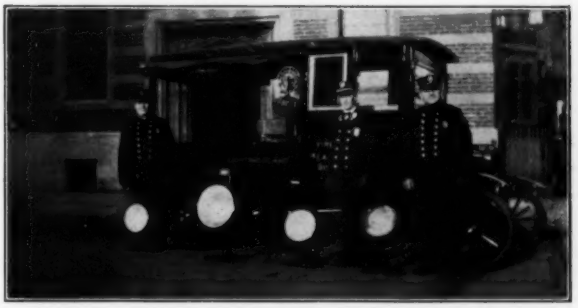
Boston Uses Searchlights at Fire

Searchlights for the flood illumination of fire escapes and alleys in the rear of burning buildings are being used by the Boston fire department.

The old acetylene lights and water lights have been largely replaced by electric searchlights which are carried in a specially constructed searchlight wagon that responds to all second alarms or to special calls.

The equipment includes a Kohler lighting unit mounted on a Ford truck. Two large sized lights are carried and a half dozen smaller sized ones. Long lengths of water proofed electric wiring are connected to the lights to permit of their being taken into courtyards or up fire escapes.

Fire Commissioner Eugene C. Hultman and Chief Daniel F. Sennott of Boston, regard the searchlight car as an essential part of the fire fighting apparatus of the city. Since its installation about a year ago the car has demonstrated its usefulness



Searchlight Car Equipped With Portable Electric Lights, Used in Boston

many times especially in cases where ladder work is hampered by smoke and darkness at night fires.

Flash lights are carried by all chief officers and electric head lights are furnished for the helmets of the members of Rescue Company No. 1. Boston believes in providing plenty of light for fire department operations. The accompanying picture shows the searchlight car and its equipment.

HARRY BELKNAP.

Portland Firemen to Tap Telephone Lines—Experiments have been made in Portland, Ore., destined to enable fire chiefs to tap into telephone lines to summon fire apparatus, much in the same way as the linesmen do. It will be necessary to readjust some of the circuits before it will be possible to do this.

FIRE DEPARTMENT ACTIVITIES

Whitaker, Pa., to Purchase Apparatus—Whitaker, Pa., will purchase fire apparatus soon.

Geneva, Ohio, Invites Bids—Bids have been invited by Geneva, Ohio, for supplying fire apparatus to protect the village.

Chatham, Va., Opens New Fire Station—A new fire station has been formally opened in Chatham, Va.

Oroville, Cal., to Add Apparatus—Fire apparatus costing $12,000 will be added to the Oroville, Cal., department.

Whittier, Cal., Asks for More Apparatus—Chief Topping of Whittier, Cal., has asked for additional fire apparatus and the matter has been referred to the fire committee.

Ramona, Cal., Considers Fire Protection—A committee of the chamber of commerce of Ramona, Cal., is investigating the problem of fire protection.

N. Sacramento, Cal., to Have Bond Issue—North Sacramento, Cal., will vote on a bond issue to improve the fire department.

San Bruno, Cal., to Have New Station—Plans are being made in San Bruno, Cal., for the construction of a new fire station. The house will be erected in the industrial district.

Bids Submitted in Cheyenne, Wyo., for Chassis—Five manufacturers submitted bids in Cheyenne, Wyo., for a new fire truck chassis. No award has been made.

Edgewood, R. I., to Have New Fire Station—A new fire station is being erected in Edgewood, R. I. Construction was started in June and it is believed that the building will be completed in January.

Charles Cohn, Ex-Chief of Allentown, Pa., Dead—Charles H. Cohn, former chief in Allentown, Pa., was buried in the West End Cemetery. There was both a police and fire department escort at the funeral, and prominent men of Allentown were pallbearers.

Firemen Hurt in Albany, N. Y., Collision—Two firemen were injured in the collision between fire apparatus and an automobile in Albany, N. Y. Witnesses say that the accident was due to the automobile driver and the city will hold him liable for the damage done to the fire apparatus.

N. Y. Deputy Chiefs Receive Pay Increase—The deputy chiefs of the New York fire department are to receive $300 a year increase in pay. When the Board of Estimate approved the increases for the officers of the fire department, the deputy chiefs were omitted from the order for more pay. They are now in the budget for an increase.

Plan Change in N. Y. Pension Law

Pensions of those men who will join the New York Fire Department after a proposed law goes in force will be decidedly different and with other retirement age limits, if a recent recommendation made by a special committee on pensions is carried out. The proposed change does not affect any person now retired or in the service but is intended for those who join after the law has been adopted.

There are thirteen different pension funds or systems for as many groups of employees in the service of the City of New York, and the firemen are bitterly opposed to any interference with the present fire department system of half pay after twenty years service. Every one of the firemen's associations has adopted resolutions demanding "hands off" the pension rights.

It is pointed out by the committee of which Gen. Charles W. Berry, City Comptroller, is chairman, that the Fire Department Relief Fund is not self-supporting and that the city annually contributes from corporate stock many thousands of dollars to make up the deficit, even though the revenues credited to the fund amount to about $1,064,000 annually from such sources as combustible permits, foreign fire insurance tax, fines and penalties, deductions for special leaves of absence, interest on investments and miscellaneous revenues.

The firemen in New York contribute nothing toward their pension fund, a fact which for years has stuck out like a sore thumb on the hand of all other groups of city employees. The policemen pay 2% of their salaries to their pension fund.

The report indicates that all groups of city employees should pay into the fund at least 4% if the pension system is to be made self-sustaining. The report further recommends that firemen be retired after 25 years service or at 60 years of age and that those who can perform the duty should be placed on a supernumerary list or a Uniformed Reserve Force and allocated to other city departments for "light duty" as Parole Officers, Court Attendants, Fire Prevention Inspectors, Messengers and Guards at salaries which shall commence at the maximum paid to them when in active service and increased $100 every two years until $3,000 annuall salary is reached.

The report has been met with a cyclone of opposition and has caused consternation in all quarters of the municipal service. In the days when fireworks were legal in New York and alcoholic liquors were also legal, the revenues from the taxes on these two commodities which went to the Fire Department Pension Fund were sufficient to keep the fund on a going basis, but not today. Then again, there have been quite a few persons in the past fifteen years who were pensioned at more than half pay. Former Fire Chief Edward F. Croker Hill receives an annual pension of $6,000—the statutory salary of the office, although he actually received $10,000 a year as salary. Other favorites of past administrations have received two-thirds and some of them three-quarters of their annual pay as pension; then again there have been a negligible number who have received pensions as a sort of compensation for injuries, infirmities, etc., which rendered them no longer fit for duty.

WM. JEROME DALY.

Flannery Heads N. Y. Lieutenants

Lieut. Joseph L. Flannery has been unanimously re-elected president of the Fire Lieutenants' Association of New York for the eighth term. Lieut. P. Joseph Connolly of Engine Company No. 23 on West 58th street, Manhattan, has been elected vice-president.

The association adopted resolutions in opposition to the recent report made by Comptroller Charles L. Berry relative to the proposed consolidation of the thirteen pension systems of city employees. The lieutenants protests contains the statement that the pensions of firemen in New York should not be touched. Lieut. Flannery was one of the witnesses before Comptroller Berry's pension inquiry board ten months ago and at that time opposed the measure.

Box 52 Association Celebrates

The 15th anniversary dinner of the Box 52 Association, of Boston, Mass., was held in the Hotel Westminster, Boston, on November 10.

Fire Commissioner Eugene C. Hultman, of the Boston Fire Department, was the guest of honor. The officers of the association are P. Hildreth Parker, president; Bartlett Tyler, vice-president; George W. Austin, treasurer; Harry J. Rockett, secretary, and Frederick Blake, assistant secretary. Mr. Parker was president of the association in 1923 and 1924 and was recently chosen to again head the organization.

Among the guests at the dinner were H. L. Bond, field engineer of the National Fire Protection Association; Chief Richard T. Breagy, of Dover, Mass.; Chief Seldon R. Allen, of Brookline, Mass.; Chief Fred Clark, of Attleboro, Mass.; Chief W. H. Hill, of Belmont; Fire Commissioner W. W. Estabrook, of Brookline; Supt. Henry Thompson, of the Boston Protective Department; Assistant Chief Henry A. Fox and Deputy Chief Albert J. Caulfield, of the Boston Fire Department.

HARRY BELKNAP.

Manville of Johns-Manville, Dead

Charles D. Manville, founder of the firm of Johns-Manville Corporation, which among other things manufacture fireproof shingles, died at his home this week in Pleasantville, N. Y., at the age of ninety-six years, from an apoplexy stroke. He retired from the active business field in 1902 and he was succeeded by the elder of his two sons as president.

Mr. Manville was originally in the garment business in Milwaukee but he was constantly on the lookout for some material, perhaps of a clay formation, to use as a heat insulator in covering steam pipes. He launched the Manville Covering Company and from this small beginning grew the present corporation that manufactures a number of heat resisting specialties.

He is survived by a son, Hiram E. Manville, who is chairman of the board of this corporation.

Progressive Fire Engineering

When the city of Seattle, Washington, purchased the MACK unit pictured, it immediately put its automotive fire equipment upon the highest plane of efficiency.

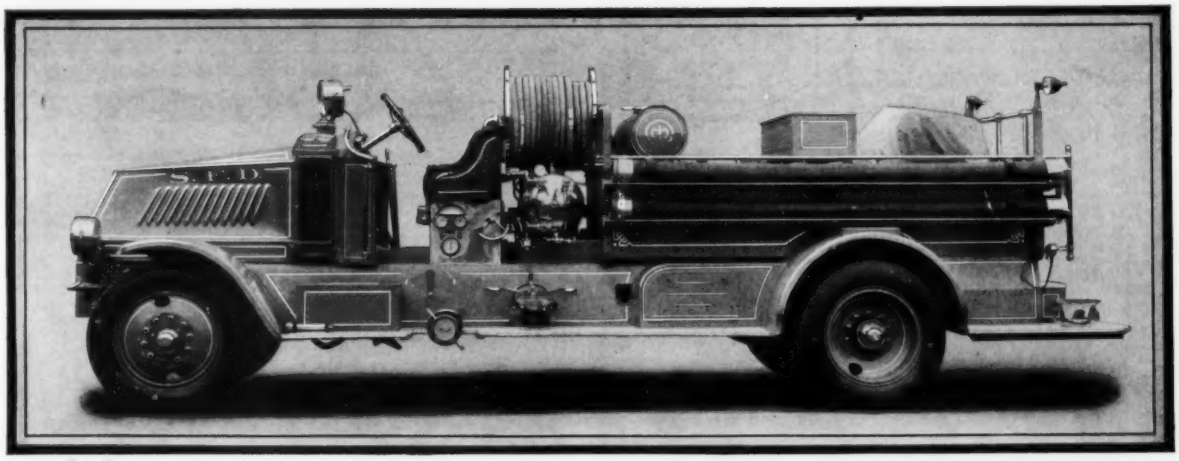
Mack

apparatus includes motors of either 4 or 6 cylinders, with pump capacities ranging from 350 to 1,000 gallons per minute. Send for complete descriptive literature.

It is a 1,000 gallon triple combination, equipped with Byron Jackson pressure volume pump. The complete line of MACK fire

25 Broadway MACK TRUCKS, Inc. New York City

More than one hundred direct MACK factory branches operate under the titles of: "MACK-INTERNATIONAL MOTOR TRUCK CORPORATION," "MACK MOTOR TRUCK COMPANY," or "MACK TRUCKS OF CANADA, LTD."



Triple Combinations

300-350 and 500 Gallons Capacity

Light and Heavy Hook and Ladder Trucks.
Miscellaneous Fire Fighting Equipment.
Fire Department Ladders.

Write us when interested

COMBINATION LADDER CO., Inc.
381 Fountain St. Providence, R. I.

BI-LATERAL FIRE HOSE

THE BI-LATERAL FIRE HOSE CO.
230 West Randolph St., Chicago, Ill.

It is the only fire hose that never bursts at fires because pin-holes are responsible for sections bursting after it has been in service a few years.

Bi-Lateral hose can never have pin-holes. We guarantee it six years and furnish the Durobuilt improvement and rocker lug coupling without additional cost.

Blanchard Adjustable Angle Nozzle TIPS

The most advanced nozzle tip ever produced.

Water Nozzle Tips, $35.00
Chemical Nozzle Tips, $25.00

They have proved satisfactory for twelve years and have saved millions in fire and water damages.
These Tips are sold direct or through Fire Department Supply Houses.

Write for circular.

ARTHUR H. BLANCHARD
25 Hampshire Street Cambridge, Mass.

S & M LITE-ING UNITS FOR FIRE APPARATUS

Powerful Drum-Type Head-Lites, are among the complete S & M line of Special Lite-Ing Units for Fire Apparatus, which includes Search-Lites, Red Safety-Lites, Red Side-Lites, Spot-Lites and Oval-Lites.

Write for Catalog.

S & M LAMP CO.
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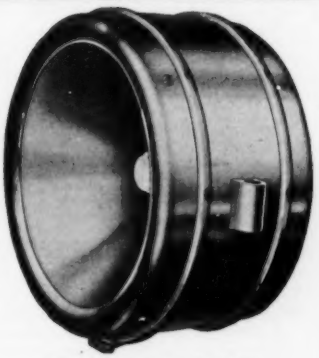
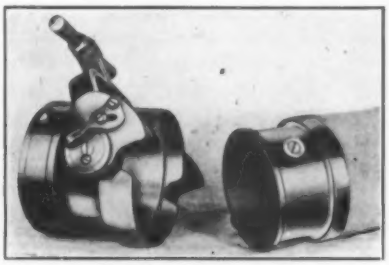
Los Angeles, Cal.



No. 21 Drum Type Head-Lite

SPEEDY SCIENTIFIC!



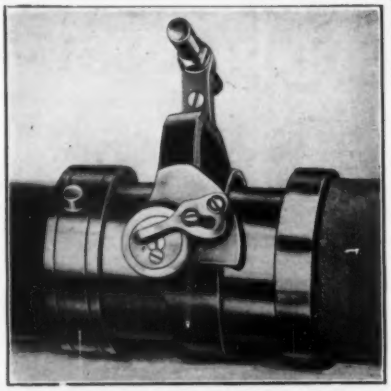
ECONOMICAL EFFICIENT!

This shift-connecting and disconnecting threadless coupling guarantees a speedy getaway when falling walls or uncontrolled fire threaten the safety of men and apparatus. Push the hand e for a positive, leak-proof connection—Pull it and it disconnects instantly. This National Threadless Coupling eliminates all threading and misthreading—Solves all hard suction problems—Cannot Leak, Freeze or Jam — No wrenches—No Gasket Wear—Sturdy bronze construction—Built to outlast the apparatus—Easily installed on any pumper. Backed by five years of gruelling service. Write for descriptive literature.

Threadless Couplings for Fire Engines, Oil Tanks and Trucks, Oilhose, etc.

National Standard Threadless Coupling Corp.

Executive Office: 215-217 Beach 122nd Street, Rockaway Park, N. Y.



THE INTERNATIONAL LINE includes Speed Trucks for 1½, 1½, and 2 ton loads and Heavy-Duty Trucks for loads up to 5 tons. Municipal equipment available for every purpose. 136 direct Company-owned branches in the United States.

INTERNATIONAL HARVESTER COMPANY of America [Incorporated]

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INTERNATIONAL HARVESTER COMPANY TRUCKS

BADGES

of Every Description

QUALITY GUARANTEED

Right Prices
Prompt Delivery

Write for latest catalogue and price list

EVERSON-ROSS CO.

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Also makers of the ROSS Helmet

JOHN H. CLAY, INC.

1320 Ridge Ave., Philadelphia, Pa.

Established 1864

Manufacturer Fire Dept. Supplies: Automatic Door Spring Outfits and All Kinds of Hydrant Connections.

Quaker Fire Hose Built with Solid Woven Cover

Quaker Fire Hose has a tube of the finest quality rubber, specially made to resist high pressures. Its cover is a circular woven tight jacket, built exceptionally strong to withstand the rough treatment to which hose is subjected.

QUAKER CITY RUBBER CO.

Manufacturers of
Daniel's P. P. P. Rod Packing
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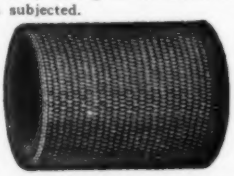


MAXIM FIRE APPARATUS

If your apparatus is Maxim-built it will prove dependable and reliable at all times.

Complete information upon request.

MAXIM MOTOR COMPANY, Middleboro, Mass.

Metropolitan Sales Agents:
The Woodhouse Manufacturing Co., 156 Chambers St., N. Y.

Have You Seen It?

If you are not already an honest-to-gosh subscriber to this magazine, you will be interested in the coupon at the bottom of page 1237.

Fire Engineering

PROPOSED IMPROVEMENTS

Bessemer, Jefferson Co., Ala.—City officials discussing plans for the purchasing of an additional piece of apparatus for the fire department. Leo Hill, Chief.

Scranton, Lackawanna Co., Penn.—A new fire station is to be erected in North Scranton.

Glenside, Montgomery Co., Penn.—The new Glenside Fire Company making plans for the erection of a new fire station.

McMechen, Marshall Co., W. Va.—Plans are being made for the installation of a new fire alarm system throughout the city. Funds are being raised for this purpose by the fire department, according to reports.

Elkhorn, Walworth Co., Wis.—Fire Chief Fred B McGill requested City Council for an appropriation for the purchase of a new piece of fire apparatus.

Plainville, Hartford Co., Conn.—City to purchase a pumper and other equipment for the fire department.

Hopkinsville, Christian Co., Ky.—Reports state plans are being discussed for the purchase of new fire equipment for the city.

Arlington, Middlesex Co., Mass. cent town meeting plans were—Reports state that at the rediscussed for the construction of a new fire station for the local fire department. Daniel B. Tierney, Chief.

Independence, Jackson Co., Mo.—City to vote Dec. 12 on a $75,000 bond issue for the purchase of fire apparatus and equipment and for the erection of a new fire station on North Main Street.

Council Bluffs, Pottawattamie Co., Iowa—City contemplating the purchase of fire extinguishing apparatus for use in combating oil blazes. James Cotter, Chief of Fire Dept. F. B. Jenkins, City Clerk.

Fire Apparatus Salesman Wanted

One of the leading manufacturers of fire apparatus has opening for good responsible salesman. Address: Box 146, % FIRE ENGINEERING, 225 West 34th St., New York, N. Y.

11-30

Thousand Automobiles Go Up in Smoke

(*Continued from page* 1208)

and Dr. John J. White, and a spare water tower, four engines and two trucks changed location; fourth alarm at 12.07 p. m. bringing five engines, one truck, chief of the 10th Battalion; three engines changed location; fifth alarm at 12.14 p. m. bringing five engines, one truck; two engines and one truck changed location, making a total of 22 engines, three fireboats, six trucks, two towers, one boat tender, six chief officers, 30 company officers and approximately 196 men engaged in the fight. Four units of the Fire Patrol (Salvage Corps) responded, but they had little if anything to do.

Fire Fought from Exterior Positions

From the very outset the fire was combatted from exterior positions with deck guns, tower streams and hand lines. The towers and deck guns were supplied mainly by fireboat lines, of which there were fourteen of 3½-inch size. The interior of the building was an inferno from the time the first company arrived. An hour after the first alarm, the east wall, facing an open lot, blew out and the roof fell in, giving the firemen a splendid opening for effective streams.

Water Tower Completely Crushed

In another hour, the north wall, which gave no previous indication of collapse, suddenly bulged not ten feet from where Chief Kenlon was standing. He cried a warning in the nick of time and the officer and two firemen directing a tower stream jumped instantaneously, only to turn their heads to see the tower demolished under tons of debris. One of the firemen was struck on the leather helmet with a brick which dented the hat and sprawled him on the ground.

Three firemen were slightly hurt, but none of them sufficiently to be relieved from duty. The company first due remained at the fire 21 hours and 15 minutes. The fire was frequently marked by the popping of gas tanks. The heat was intense at times and following the collapse of the roof and the east wall, the flames, fed by the freshly varnished tinder of the new automobiles and their upholstered interiors, leaped skyward for a hundred feet or more.

Among the spectators were Fire Commissioner John J. Dorman and Fire Commissioner C. Hayward Murphy of Detroit, Mich.

CONVENTION DATES

May 7-10, 1928—NATIONAL FIRE PROTECTION ASSOCIATION (International). 32nd Annual Meeting, Atlantic City, N. J. Secretary, Franklin H. Wentworth, 40 Central Street, Boston, Mass.

May 10-11, 1928—ARIZONA STATE FIREMEN'S ASSOCIATION. 5th Annual Convention, Bisbee, Ariz. Secretary, Chief W. J. Nemeck, Douglas, Ariz.

June 19-21, 1928—HUDSON VALLEY VOLUNTEER FIREMEN'S ASSOCIATION. 39th Annual Convention, Kingston, N. Y. Secretary, Chief Chris. W. Noll, Poughkeepsie, N. Y., Fire Department.

Sept. 18-19, 1928—IOWA FIREMEN'S ASSOCIATION. 51st Annual Convention, Independence, Ia. Secretary, E. E. Parsons, Marion, La.

Oct. 22-24, 1928—KANSAS STATE FIRE CHIEFS and FIREMEN'S ASSOCIATIONS and WOMEN'S AUXILIARY. 13th and 42nd Annual Conventions and 3d Meeting, respectively, Liberal, Kan. Secretary, Chief K. D. Doyle, Wamego, Kan.

Comedian Averts Theatre Panic

Even the lowly may some day rise to the heights reserved for hero worship.

Marty Joyce was just a comedian appearing on the vaudeville stage and who was content to make people laugh. He also acted as master of ceremonies at some of the Sunday night concerts in New York city. One of his numbers is "When the Pussy Willow Whispers to the Catnip," and that generally brings the greatest laugh.

During the show some one in the audience reported that he detected the odor of smoke. The word was passed back stage and Marty who was through with his act reappeared. The audience immediately sat up when the orchestra commenced to play his popular song. It was doubly popular because at certain parts in the song, the audience is given an opportunity to join in the whisper.

When the sound of fire apparatus was heard, he requested the policemen in the theatre to station themselves at the exits. As soon as the men and ushers had taken their positions, he told the audience that there was a small fire in the theatre and that all should leave quietly. They did and the 2,400 persons who left in an orderly manner averted what might have been a serious panic.

Elephants Form Fire Brigade

Some one has estimated that elephants drink about twelve gallons of water at a time. With this in mind, continue on with the story.

Travancore, a section near Bangkok, India, is still talking of how a herd of wild elephants organized themselves into a fire brigade and extinguished a fire that threatened to develop into a large size forest fire.

During a gale a large tree was uprooted and fell across the main trunk road in Travancore State, near Theorm Custom House. Some laborers who had been sent to clear away the debris set the tree on fire so as to lessen their work. When night came they returned to the Custom House, leaving the tree still burning with its sparks constantly being blown into the dry forest. The fire was gaining headway there when the leader of a herd of wild elephants smelled the fire and came to the road in order to satisfy his curiosity. The rest of the story as told in Bangkok is:

"The moment he saw the fire spreading to the forest he called his followers by loud trumpeting and within a few moments a well-disciplined band of dusky four-footed firemen were busily employed with their trunks as hose turning forty streams of water on the blazing tree and burning woods.

"A running stream near-by was a sufficient reservoir for them to draw their supply of water, and very soon, to the amazement of the wonder-struck laborers, who had been attracted by the trumpeting to the place where they should have been working, the fire was put out and, perhaps as a matter of revenge, the elephants dragged the fallen tree into the middle of the road and left it there."

Chicago Department Has Shakeup—Fifty-four firemen in Chicago, Ill., have been transferred in a department shakeup that was sponsored by Michael Corrigan, newly appointed fire chief. The order affects four division fire marshals, two battalion chiefs, one captain and ten lieutenants.

FALSE ALARMS

FIRM FOR HER RIGHTS

In a large Indiana department store, the state fire marshal was conducting a fire drill during the convention of a firemen's association.

A bargain sale was in progress when the fire gong sounded. Around one of the counters, there were women shoppers lined up about fifteen deep. They soon cleared out when they heard the fire bell. That is, all but one.

A member of the fire prevention bureau explained that she must leave the building.

It was only when he had assured her that she would get her fifteen cents change for which she was waiting, that she finally left.

NOT TO BE DISTURBED

A writer of one of the best sellers was seated at his typewriter pounding out an exciting part of the story. His wife burst into the room excitedly.

"Joe, the house is on fire! The firemen are pounding on the door!"

"Don't worry, dear; just tell them that I'll soon be finished."

CONCLUSIVE PROOF

"How do you know that Fireman O'Brien was drunk?" asked one of the commissioners who was holding court to consider the matter of drunkenness and insubordination.

"He was having an awful fight with the lieutenant," replied one of the firemen who was called as a witness.

"But that doesn't prove that he was drunk," said the commissioner.

"I don't know," continued the witness, "but the lieutenant wasn't there."

"I see by the papers that the traction company lost all their car barns by fires."

"Yes," replied the other, "decarbarnization by carbonization, so to speak."

MEANS OF MEASURING

In a northern country, an ambitious colored fireman was advanced to the office of lieutenant. The change in rank meant that there was also to be a change in the style of uniform. He would now wear a wing collar.

His husky wife went shopping for the collar.

"What size collar?" asked the clerk.

"Ah dunno what size, but ah does know that I can jes' manage to get both hands aroun' his neck."

A GOOD GUESS

Some member of the fire department appeared before the class during Fire Prevention Week to explain to the youngsters how to turn in a fire alarm.

He told the children how when people were excited they often forget the right thing to do, unless they had learned the act thoroughly.

"Now children," he said after he had explained the steps to be taken to report a fire, "Shut your eyes and we will see how much you have learned."

He tried to create the tense atmosphere incidental to a fire scene. He clicked his tongue on the roof of his mouth to imitate the noise of one opening a fire alarm box.

"What have I done," he asked of one child in the rear of the room.

"Please sir, you have kissed teacher."

"What are you blushing about, little girl?"

"Oh, that's natural. You see I was born over a fire house."

VALUABLE ACCESSORY

Smoke was pouring out of the second story window in great volumes. Even newspaper men could not tell how many pairs of eyes were turning upward, watching and praying.

"There's a girl up there," one of the crowd shouted.

Donnelly of Truck 6 could not let so fair a maiden suffer. He was soon rushing up the ladder, and in a very short time he had the girl thrown over his broad back and was descending to safety.

She was groggy from the smoke as he placed her on her feet. She tottered but he caught her.

"You nearly lost your equilibrium," said the fireman with a smile.

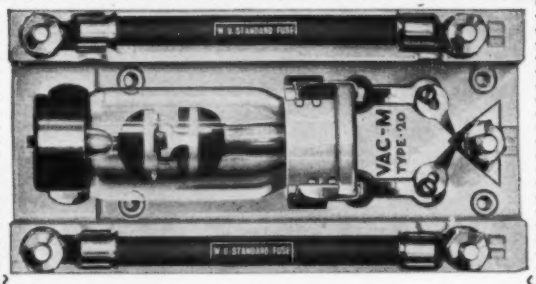
"Oh, heavens no," replied the maiden. "I do hope that it's not showing."

"Pa, I wanna be a fireman."

"What do you want to be a fireman for? You can hear just as good stories from the travelin' salesmen."

It Came — They Saw and They Conquered —*Drawing by "Art" Espey*

This is another episode of the Ossining, N. Y., fire department story. Several factions were seeking to obtain possession of a new fire apparatus that was expected to be delivered soon. The apparatus finally arrived and there was a reception committee to meet it. Banged-up heads and injured on the road spoke well for the enthusiastic reception accorded by the committee. When the truck approached, the waiting faction from a rival company overpowered the driver, threw or forced off all members of another company who were then riding on the truck, and away went the victors with the spoils.



What's More Important than Your Fire Alarm?

Minutes lost in getting a call may mean preventable loss of life and property.

Your delicate alarm instruments must never fail. Protect them against lightning and kindred electrical disturbances by installing VAC-M Arresters.

Every system should be "VAC-M Equipped." Is Yours?

Complete Information on Request!

The National Electric Specialty Co.
Toledo, Ohio

MATHEWS

(Reg. U. S. Pat. Off.)

FIRE HYDRANTS

for

DOMESTIC

and

HIGH PRESSURE

Service

NOTE—

The positive waste value.

All operating threads are dry, being above the stuffing-box.

No toggles, no small, quick-wearing parts.

All moving parts are bronze or bronze-bushed.

The outside casing permits replacing a two-way standpipe with a steamer and two-way standpipe without digging up the ground.

An easily installed
EXTENSION SECTION
readily adapts them to new grades.

VALVES and BOXES
CAST IRON PIPE
(Sand-Cast or "Sand-Spun")
FITTINGS

R. D. WOOD & CO., Phila., Pa.

GO EASY WITH THAT CHEMICAL! YOU'RE RUINING EVERYTHING!
WHY DON'TJA TRY THESE TIRE CHAINS? MAYBE THEY'LL WORK!
WHY ALL THE FUSS? WHEN ONE LITTLE PACKAGE OF KilSoot WILL DRIVE OUT THE TOUGHEST OLD CHIMNEY FIRE IN A JIFFY!

KilSoot

Trade Mark

Saves Time, Effort and Operating Cost. Just toss a package into fire in stove, heater or fireplace. No ladder work.

The Increased Demand by Fire Chiefs for Special Fire Department Containers has now been met. May we quote you prices, or

DO YOU WANT SAMPLES OF KILSOOT?

The KilSoot Method Is the Original American Form of Modern Chimney Fire Extinquishment and Many of Our Special Representatives Are Firemen.

KILSOOT CHEMICAL COMPANY, INC.
1834 Broadway New York

SOUTHWORTH
Quality Fire Apparatus

300 to 750 Gal. Triple Combination Pumpers.

City Service Ladder Trucks, Combination and Chemical Cars.

Recent Sales
Harrison, Maine
300 Gallon Pump

Waterville, Maine
One Tank Combination

Charlestown, N. H.
500 Gallon Pump

SOUTHWORTH MACHINE CO.
Fire Apparatus Division
52 Sagamore Ave., Chelsea, Mass.
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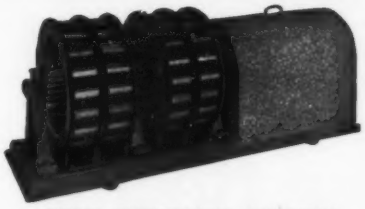

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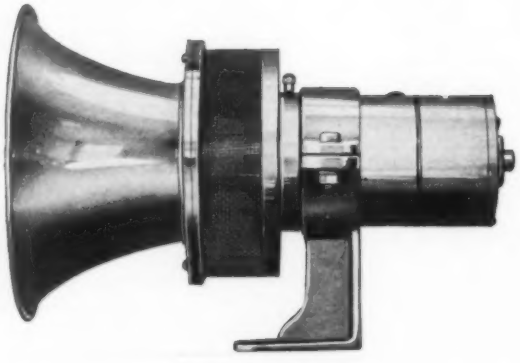

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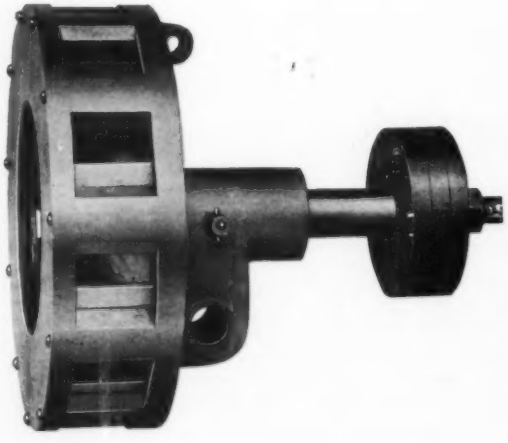

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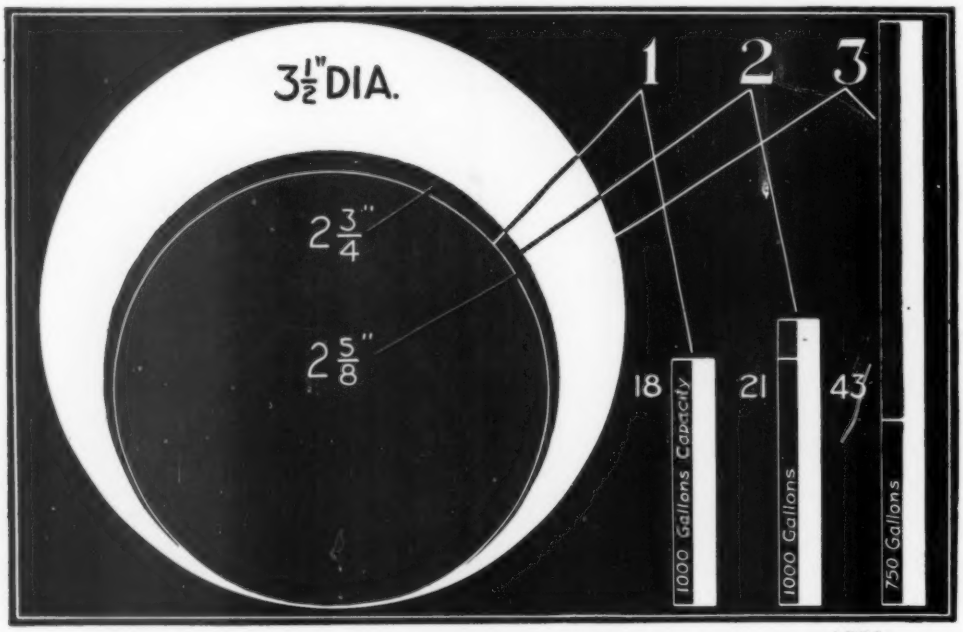

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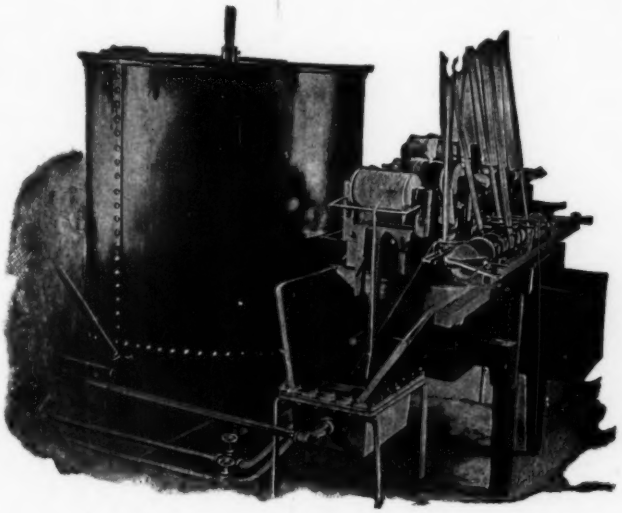

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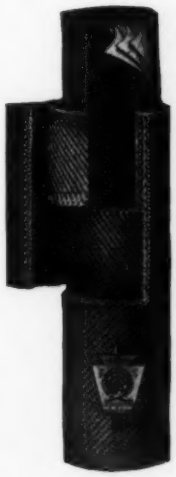

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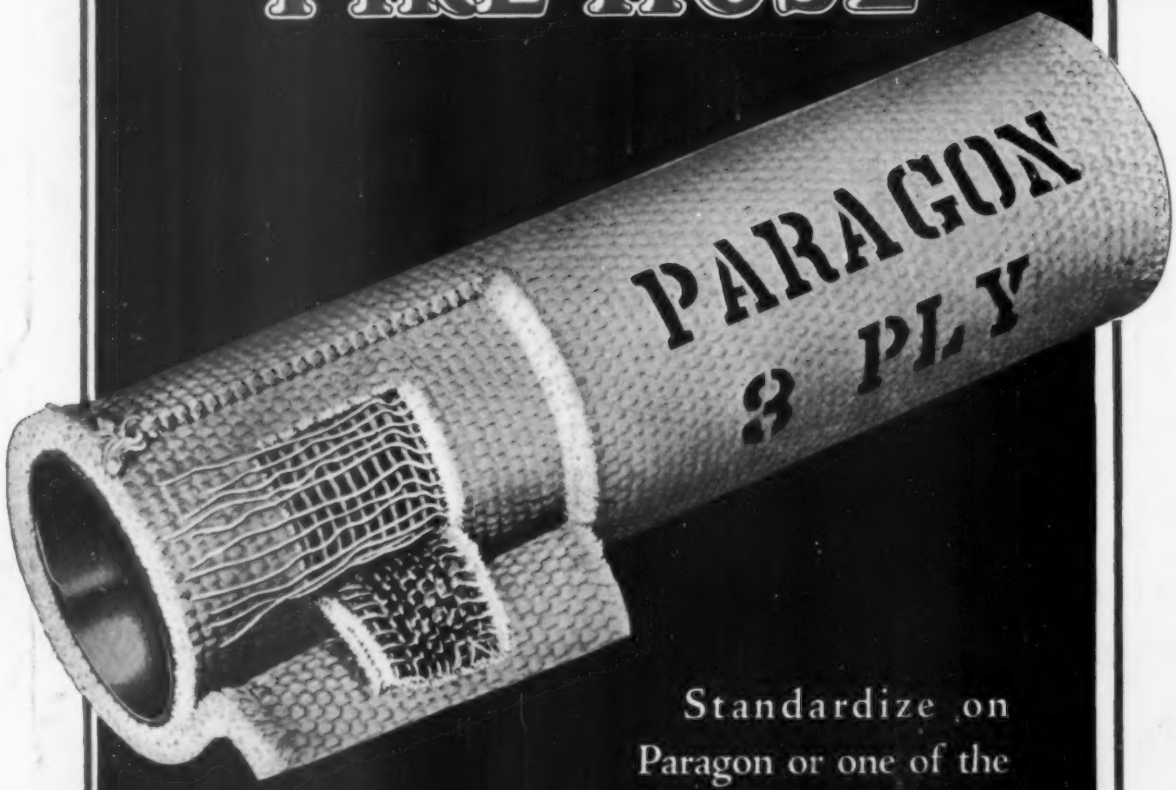

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